



Sequel™ SMRT® Link Web Services API v4.0.0 Guide

Pacific Biosciences

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Chapter 1- Introduction

This document describes the SMRT Link Web Services API provided by Pacific Biosciences. The API allows integration of SMRT Link with third party software using the APIs, and accessing features such as designing and performing QC on instrument runs, querying new data from the instrument, and starting analyses on the sequence data.

The Web Services support RESTful access from web clients, and can be used from the command line with `wget` or `curl`, from scripting languages such as PHP, Python, PERL, and from programming languages such as Java, C++, and C#.

The API includes functions for:

- Managing run designs;
- Managing resources, such as instruments;
- Managing Data Sets;
- Managing analysis jobs;
- Monitoring the health status of the system.

The Web Services APIs:

- Run in or under a standard Linux/Apache environment, and can be accessed from Windows, Mac OS or Linux operating systems.
- Are installed as part of the SMRT Analysis, and require a one-time configuration.

1.1 Authentication

SMRT Link supports the use of LDAP for user authentication. For detail on integrating LDAP and SMRT Link v4.0.0, see the document **SMRT Link Software Installation**.

SMRT Link manages user access to API endpoints of the SMRT Link Web Services based on User Roles. SMRT Link v4.0 supports three User Roles: **Admin**, **Lab Tech**, and **Bioinformatician**. For detail on assigning User Roles, see the documents **SMRT Link Software Installation (v4.0.0)** or **SMRT Link User Guide (v4.0.0)**.

For information on which API endpoints may be accessed by each User Role, see *Endpoint-to-User-Role Mapping* in the *Overview* section of each SMRT Link Web Service described in this document.

Most of the SMRT Link RESTful APIs in version 4.0 can be accessed directly without authentication through port 8081.

The only API that requires authentication is the Project Service API; it is accessed through the WSO2 API Manager software, which acts as a proxy and runs on port 8243. See [Authentication for Project Service API](#) for more details.

Chapter 2 - SMRT® Link Service API

2.1 Run Design Service

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2.1.1 Overview of Run Design Service

Use Cases

The Run Design Service enables creating, viewing, editing, and deleting run designs.

Key Concepts

Run Design enables users to define runs.

A **run** is defined as a set of one or more data collections to be acquired in sequence on an instrument. A run specifies:

- Examples, example wells, and SMRT Cells to include in the sequencing run;
- Collection parameters and analysis automation to use for each example within the run.

Endpoint-to-User-Role Mapping: Run Design Service API

The following table defines which Run Design Service API endpoints can be accessed by each SMRT Link User Role:

Endpoint	User Role(s)
List All Run Designs	Admin, Lab Tech, Bioinformatician
Create Run Design	Admin, Lab Tech
Search Run Designs	Admin, Lab Tech, Bioinformatician
Retrieve Run Design Details	Admin, Lab Tech, Bioinformatician
Get Run Design Collections	Admin, Lab Tech, Bioinformatician
Get Run Design Collection by Id	Admin, Lab Tech, Bioinformatician
Update Run Design	Admin, Lab Tech
Delete Run Design	Admin, Lab Tech

Note: For details on the user authentication mechanism and User Roles, see the *Authentication* section in the [Introduction](#) chapter.

2.1.2 List of Run Designs

Get the list of all run designs available on the system.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/runs">http://<host>:<port>/smrt-link/runs

Request Headers	Description	Required	Example
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all run designs available on the system:

GET <http://SMRTLinkServername.domain:8081/smrt-link/runs>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there are no run designs defined on the server, response will still be 200 OK, with an empty array of run designs in the response body.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml.

Sequel SMRT Link Web Services API v4.0.0

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specify which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Mon, 25 Jan 2016 17:25:27 GMT
Content-Length	Length of the response body in octets	Yes	3215
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all run designs - response schema

Example Response

See [List of all run designs - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint	N/A
SMRT Link v4.0	Changed response and response schema	No

List of all run designs - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesigns.list",
  "version" : "0.1.0",
  "title" : "Run Designs List",
  "description" : "Array of Run Design objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Run Design Name",
        "description" : "Name of this run design",
        "type" : "string"
      },
      "uniqueId" : {
        "title" : "Run Design UUID",
        "description" : "UUID of this run design", "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this run design was created", "type" : "string",
        "format" : "date-time"
      }
    }
  }
}
```



```
"createdBy" : {
  "title" : "Created by",
  "description" : "Login name of the user who created this run
design", "type" : "string"
},
"startedAt" : {
  "title" : "Started at",
  "description" : "Time when this run design was
started", "type" : "string",
  "format" : "date-time"
},
"completedAt" : {
  "title" : "Completed at",
  "description" : "Time when this run design was
completed", "type" : "string",
  "format" : "date-time"
},
"transfersCompletedAt" : {

  "title" : "Transfers Completed At",
  "description" : "Time when this run design's transfers were
completed", "type" : "string",
  "format" : "date-time"
},
"summary" : {
  "title" : "Run Design Summary",
  "description" : "Summary string describing this
run design", "type" : "string"
},
"reserved" : {
  "title" : "Reserved State",
  "description" : "Reserved state of this run
design", "type" : "boolean"
},
"status" : {
  "title" : "Run Design Status",
  "description" : "Status of run design, e.g.
Ready", "type" : "string"
},
"instrumentName" : {
  "title" : "Instrument Name",
  "description" : "Name of the instrument where this run design
defined", "type" : "string"
},
"instrumentSerialNumber" : {
  "title" : "Instrument Serial Number",
  "description" : "Serial number of the instrument",
  "type" : "string"
},
"instrumentSwVersion" : {
  "title" : "Instrument Software Version",
  "description" : "Version number of instrument control software",
  "type" : "string"
},
"primaryAnalysisSwVersion" : {
  "title" : "Primary Analysis Software Version",
  "description" : "Version number of primary analysis software",
  "type" : "string"
},
"totalCells" : {

  "title" : "Total Cells",
```

```

    "description" : "Total number of cells",
    "type" : "integer"
  },
  "numCellsCompleted" : {
    "title" : "Number Cells Completed",
    "description" : "Number of cells completed",
    "type" : "integer"
  },
  "numCellsFailed" : {
    "title" : "Number Cells Failed",
    "description" : "Number of cells failed",
    "type" : "integer"
  },
  "context" : {
    "title" : "Run Design Context",
    "description" : "Context of this run design",
    "type" : "string"
  }
},
"required" : [
  "name",
  "uniqueId",
  "createdAt",
  "createdBy",
  "startedAt",
  "completedAt",
  "transfersCompletedAt",
  "summary",
  "reserved",
  "status",
  "instrumentName",
  "instrumentSerialNumber",
  "instrumentSwVersion",
  "primaryAnalysisSwVersion",
  "totalCells",
  "numCellsCompleted",
  "numCellsFailed",
  "context"
]
},
"additionalItems" : false
}

```

List all run designs - response example

```

[ {
  "reserved" : true,
  "name" : "DryRun 01.10.2017 14:30",
  "completedAt" : "2017-01-11T05:11:00.562Z",
  "instrumentName" : "54119",
  "context" : "r54119_20170110_234346",
  "instrumentSwVersion" : "4.0.0.189873",
  "numCellsCompleted" : 3,
  "totalCells" : 3,
  "primaryAnalysisSwVersion" : "4.0.0-189308",
  "status" : "Complete",
  "createdAt" : "2017-01-10T23:43:33.741Z",
  "startedAt" : "2017-01-10T23:53:12.019Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,

  "instrumentSerialNumber" : "54119",

```

```

"transfersCompletedAt" : "2017-01-11T05:16:35.120Z",
"uniqueId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6"
}, {
  "reserved" : true,
  "name" : "20170124_SQ86_NGAT_DT11",
  "instrumentName" : "54086",
  "context" : "r54086_20170124_202321",
  "instrumentSwVersion" : "4.0.0.189873",
  "numCellsCompleted" : 0,
  "totalCells" : 2,
  "primaryAnalysisSwVersion" : "4.0.0-blee59b",
  "status" : "Ready",
  "createdAt" : "2017-01-24T20:09:27.629Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,
  "instrumentSerialNumber" : "54086",
  "uniqueId" : "262a81a3-96b8-49ef-91c7-744ebc260881"
}, {
  "reserved" : true,
  "name" : "SMS_GoatVer_VVC034_3150433_2kLambda_400pm_SNR10.5",
  "completedAt" : "2016-10-18T11:20:50.684Z",
  "instrumentName" : "batman",
  "context" : "r54011_20161017_233934",
  "instrumentSwVersion" : "3.2.0.186960",
  "numCellsCompleted" : 4,
  "totalCells" : 4,
  "primaryAnalysisSwVersion" : "3.2.0-186859",
  "status" :

  "Complete",
  "createdAt" : "2016-10-17T23:36:35.000Z",
  "startedAt" : "2016-10-17T23:47:01.493Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,
  "instrumentSerialNumber" : "54011",
  "transfersCompletedAt" : "2016-10-18T11:16:54.232Z",
  "uniqueId" : "b81de65a-8018-4843-9da7-ff2647a9d01e",
  "summary" : "lambdaNEB"
}
]

```

2.1.3 Create Run Design

This API is used to create a new run design.

Request

Method	URL
POST	<a href="http://<host>:<port>/smrt-link/runs">http://<host>:<port>/smrt-link/runs

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request	Yes	application/json
Accept	Content-Types acceptable for the response	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Create run design - request schema

Example RequestSee [Create run design - request example](#)**Response**

HTTP Status Code	Error Message	Description
201 Created	None	Request was completed successfully. The newly-created run design object in a summary form will be returned in the response body.
415 Unsupported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded
422: Un-processable Entity	XML did not conform to schema: An error occurred unmarshalling the document	Occurs when the serialized XML file that was passed in the "dataModel" field does not conform to the PacBioDataModel.xsd schema. Transformation of the object used for storage or transmission to an executable object was unsuccessful.

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 26 Jan 2016 01:13:12 GMT
Content-Length	Length of the response body in octets	Yes	176
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Create run design - response schema

Example ResponseSee [Create run design - response example](#)**Change Log**

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	<ul style="list-style-type: none"> "runDataModel" -> "dataModel" in request. Changed response and response schema. 	No

Create run design - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.new",
  "version" : "0.1.0",
  "title" : "New Run Design",
  "description" : "A subset of Run Design object required to create a new run design",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "dataModel" : {
      "title" : "Run Data Model",
      "description" : "Serialized XML file specifying metadata of this run design",
      "type" : "string"
    },
    "summary" : {
      "title" : "Summary",
      "description" : "Summary description of this run design",
      "type" : "string"
    }
  },
  "required" : [
    "name",
    "dataModel",
    "summary"
  ],
  "additionalProperties" : false
}
```

Note: The “dataModel” field is specified according to the PacBioDataModel.xsd schema.

Create run design - request example

Create a new run design:

POST <http://SMRTLinkServername.domain:8081/smrt-link/runs>

```
{
  "dataModel" : "<serialized Run Design XML file, as in the example below>",
  "name" : "Run_201601220309_D15",
  "summary" : "tkb C5 circular 23x I92782"
}
```

Note: The value of the “name” field passed in the request body does not need to be unique. If a run design object with the same “name” already exists, the new run design object still will be created successfully, with a new “id” allocated for it by the server.

Note: The “dataModel” field contains a serialized Run Design XML file, as in the example below:

```

<?xml version='1.0' encoding='utf-8'?>
<PacBioDataModel xmlns='http://pacificbiosciences.com/PacBioDataModel.xsd'>
  <ExperimentContainer Name='1_CellWorkflow' ExperimentId='685' CreatedAt='2015-07-09T09:30:47'>
    <InvestigatorName>PacBio</InvestigatorName>
    <CreatedDate>2015-04-13</CreatedDate>
    <Runs>
      <Run Name='Run_138' UniqueId='c824e1ca-a244-4b73-94d7-cb8701dce243' Status='Ready'>
        <Outputs>
          <SubreadSets>
            <SubreadSet TimeStampedName='1-Subread-2015-07-09T09:30:47'
              MetaType='SubreadSetCollection'>
<ExternalResources xmlns='http://pacificbiosciences.com/PacBioBaseDataModel.xsd'>
  <ExternalResource MetaType='ExternalResource' UniqueId='e9000a03-9c36-4c77-bc8f-22a1ef678c6a'>
</ExternalResources>
<DataSetMetadata>
  <TotalLength>0</TotalLength>
  <NumRecords>0</NumRecords>
  <Collections xmlns='http://pacificbiosciences.com/PacBioCollectionMetadata.xsd'>
    <CollectionMetadata MetaType='CollectionMetadata' UniqueId='bb89dcfa-7bf2-428c-ac59-bc34e2b'>
      <InstCtrlVer>String</InstCtrlVer>
      <SigProcVer>String</SigProcVer>
      <RunDetails>
        <TimeStampedName>DefaultTimeStampedRunName</TimeStampedName>
        <Name>Run_201510151138</Name>
        <CreatedBy>String</CreatedBy>
        <WhenCreated>0001-01-01T00:00:00</WhenCreated>
        <WhenStarted>0001-01-01T00:00:00</WhenStarted>
      </RunDetails>
      <WellExample Name='Example_138' CreatedAt='0001-01-01T00:00:00'>
        <WellName>A01</WellName>
        <Concentration>0</Concentration>
        <InsertSize>10000</InsertSize>
        <ExampleReuseEnabled>false</ExampleReuseEnabled>
        <StageHotstartEnabled>true</StageHotstartEnabled>
        <SizeSelectionEnabled>true</SizeSelectionEnabled>
        <UseCount>0</UseCount>
        <DNAControlComplex>DNA Internal Control Complex SQ v1</DNAControlComplex>
      </WellExample>
      <Automation Name='Workflow_Magbead.py'>
<AutomationParameters
xmlns='http://pacificbiosciences.com/PacBioBaseDataModel.xsd'>
  <AutomationParameter Name='Exposure' ValueDataType='Double' SimpleValue='0.0125' />
  <AutomationParameter Name='LeftLaserPower' ValueDataType='Double'
SimpleValue='10' />
  <AutomationParameter Name='RightLaserPower' ValueDataType='Double'
SimpleValue='10' />
  <AutomationParameter Name='MovieLength' ValueDataType='Double' SimpleValue='120' />
  <AutomationParameter Name='seqPixelROI' ValueDataType='JSON'
SimpleValue='[[0,0,10,19]]' />
  <AutomationParameter Name='UseStageHotStart' ValueDataType='String'
SimpleValue='true' />
  <AutomationParameter Name='CollectionNumber' ValueDataType='Int32'
SimpleValue='0' />
  <AutomationParameter Name='CellReuseIndex' ValueDataType='Int32' SimpleValue='0' />
</AutomationParameters>
</Automation>
<CollectionNumber>0</CollectionNumber>
<CellIndex>0</CellIndex>

```

```

<TemplatePrepKit Name='SMRTbell™ Template Prep Kit' Version='3' PartNumber='100-259-300'>
  <LeftAdaptorSequence>ATCTCTCTcttttctcctccgttggttggtGAGAGAGAT</LeftAdaptorSequence>
  <LeftPrimerSequence>aacggaggaggagga</LeftPrimerSequence>
  <RightAdaptorSequence>ATCTCTCTcttttctcctccgttggttggtGAGAGAGAT</RightAdaptorSequence>
  <RightPrimerSequence>aacggaggaggagga</RightPrimerSequence>
</TemplatePrepKit>
<BindingKit Name='Sequel Binding Kit v1' PartNumber='100619300' />
<SequencingKitPlate Name='Sequel Sequencing Kit v1' PartNumber='100620000' />
<Primary>
  <AutomationName>DefaultPrimaryAutomationName</AutomationName>
  <ConfigFileName>DefaultPrimaryConfigFileName</ConfigFileName>
  <SequencingCondition>FAKE</SequencingCondition>
  <OutputOptions>
    <ResultsFolder>Analysis_Results</ResultsFolder>
    <CollectionPathUri>DefaultCollectionPathUri</CollectionPathUri>
    <CopyFiles>
      <CollectionFileCopy>Movie</CollectionFileCopy>
      <CollectionFileCopy>Trace</CollectionFileCopy>
      <CollectionFileCopy>Pulse</CollectionFileCopy>
      <CollectionFileCopy>Base</CollectionFileCopy>
      <CollectionFileCopy>Fasta</CollectionFileCopy>
      <CollectionFileCopy>Bam</CollectionFileCopy>
      <CollectionFileCopy>Baz</CollectionFileCopy>
    </CopyFiles>
    <Readout>Bases</Readout>
    <MetricsVerbosity>High</MetricsVerbosity>
  </OutputOptions>
</Primary>
<Secondary>
  <AutomationName>DefaultSecondaryAutomationName</AutomationName>
  <AutomationParameters>
    <AutomationParameter Name='Reference' ValueDataType='String'
      SimpleValue='lambdaNEB' />
  </AutomationParameters>
  <CellCountInJob>0</CellCountInJob>
</Secondary>
<UserDefinedFields>
  <DataEntities Name='LIMS_IMPORT' ValueDataType='String'
    SimpleValue='UserDefinedLIMS' />
</UserDefinedFields>
</CollectionMetadata>
</Collections>
</DataSetMetadata>
</SubreadSet>
</SubreadSets>
>
</Outputs>
</Run>
</Runs>
</ExperimentContainer>
</PacBioDataModel>

```

Create run design - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.summary",

```

```
"version" : "0.1.0",
"title" : "Run Design Summary",
"description" : "Run Design object in summary
form", "type" : "object",
"properties" : {
  "name" : {
    "title" : "Run Design Name",
    "description" : "Name of this run
design", "type" : "string"
  },
  "uniqueId" : {
    "title" : "Run Design UUID",
    "description" : "UUID of this run
design", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this run design was
created", "type" : "string",
    "format" : "date-time"
  },
  "createdBy" : {
    "title" : "Created by",
    "description" : "Login name of the user who created this run
design", "type" : "string"
  },
  "startedAt" : {
    "title" : "Started at",
    "description" : "Time when this run design was
started", "type" : "string",
    "format" : "date-time"
  },
  "completedAt" : {
    "title" : "Completed at",
    "description" : "Time when this run design was
completed", "type" : "string",
    "format" : "date-time"
  },
  "transfersCompletedAt" : {
    "title" : "Transfers Completed At",
    "description" : "Time when this run design's transfers were
completed", "type" : "string",
    "format" : "date-time"
  },
  "summary" : {
    "title" : "Run Design Summary",
    "description" : "Summary string describing this run design",
    "type" : "string"
  },
  "reserved" : {
    "title" : "Reserved State",
    "description" : "Reserved state of this run design",
    "type" : "boolean"
  },
  "status" : {
```



```

    "title" : "Run Design Status",
    "description" : "Status of run design, e.g. Ready",
    "type" : "string"
  },
  "instrumentName" : {
    "title" : "Instrument Name",
    "description" : "Name of the instrument where this run design defined",
    "type" : "string"
  },
  "instrumentSerialNumber" : {
    "title" : "Instrument Serial Number",
    "description" : "Serial number of the instrument",
    "type" : "string"
  },
  "instrumentSwVersion" : {
    "title" : "Instrument Software Version",
    "description" : "Version number of instrument control software",
    "type" : "string"
  },
  "primaryAnalysisSwVersion" : {
    "title" : "Primary Analysis Software Version",
    "description" : "Version number of primary analysis software",
    "type" : "string"
  },
  "totalCells" : {
    "title" : "Total Cells",
    "description" : "Total number of cells",
    "type" : "integer"
  },
  "numCellsCompleted" : {
    "title" : "Number Cells Completed",
    "description" : "Number of cells completed",
    "type" : "integer"
  },
  "numCellsFailed" : {
    "title" : "Number Cells Failed",
    "description" : "Number of cells failed",
    "type" : "integer"
  },
  "context" : {
    "title" : "Run Design Context",
    "description" : "Context of this run design",
    "type" : "string"
  }
},
"required" : [
  "name",
  "uniqueId",
  "createdAt",
  "createdBy", "startedAt", "completedAt", "transfersCompletedAt", "summary",
  "reserved", "status", "instrumentName",
  "instrumentSerialNumber", "instrumentSwVersion", "primaryAnalysisSwVersion",
  "totalCells", "numCellsCompleted", "numCellsFailed",
  "context"
]

  "additionalProperties" : false
}

```

Create run design - response example

```
{
  "reserved" : false,
  "name" : "Run_201601220309_D15",
  "instrumentName" : "Inst54009",
  "context" : "r54009_20160122_031203",
  "instrumentSwVersion" : "String",
  "numCellsCompleted" : 0,
  "totalCells" : 4,
  "primaryAnalysisSwVersion" : "String",
  "status" : "Running",
  "createdAt" : "0001-01-01T08:00:00.000Z",
  "numCellsFailed" : 1,
  "instrumentSerialNumber" : "54009",
  "uniqueId" : "abc82037-9231-4124-a87c-2b4e6f00a66d",
  "summary" : "tkb_C5_circular_23x_I92782"
}
```

Note: The “createdBy” and “createdAt” fields are automatically populated using the authenticated user’s login and the current system time. The initial “reserved” state is false.

2.1.4 Search Run Designs

This API is used to search for run designs, filter by reserved state, creator, and/or summary substring.

Request

Method	URI
GET	<a href="http://<host>:<port>/smrt-link/runs?reserved={RESERVED_STATE}&createdBy={CREATOR}&substring={SUMMARY_SUBSTRING}">http://<host>:<port>/smrt-link/runs?reserved={RESERVED_STATE}&createdBy={CREATOR}&substring={SUMMARY_SUBSTRING}

Query Parameters	Data Type	Description	Required	Multi-valued	Default Value	Possible Values
reserved	boolean	Reserved state of run design	No	No	false	false, true
createdBy	string	User login as defined in LDAP	No	No	N/A	jdoe, tcruise
substring	string	Run design summary substring	No	No	N/A	resequencing, lambda

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Find all run designs that are reserved, created by user ‘unknown’, and have substring ‘lambda’ in summary by using: GET

<http://SMRTLinkServername.domain:8081/smrt-link/runs?reserved=true&createdBy=unknown&substring=lambda>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there are no run designs corresponding to the filtering criteria, then the response still will be 200 OK, with an empty array of run designs in the response body.
400 Bad Request	The query parameter 'reserved' was incorrect: 'kuku' is not a valid Boolean value	Occurs when invalid values of query parameters were passed, for example: GET http://SMRTLinkServername.domain:8081/smart-link/runs?reserved=kuku

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 20 Nov 2015 03:11:19 GMT
Content-Length	Length of the response body in octets	Yes	2728
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Search run designs - response schema

Example Response

See [Search run designs - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	<ul style="list-style-type: none"> Query parameterter "root" -> "unknown" in request. Changed response and response schema. 	No

Search run designs - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesigns.list",
  "version" : "0.1.0",
  "title" : "Run Designs List",
  "description" : "Array of Run Design objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",

    "properties" : {
      "name" :
```

```
{
  "title" : "Run Design Name",
  "description" : "Name of this
run design", "type" : "string"
},
"uniqueId" : {
  "title" : "Run Design UUID",
  "description" : "UUID of this
run design", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this run design was
created", "type" : "string",
  "format" : "date-time"
},
"createdBy" : {
  "title" : "Created by",
  "description" : "Login name of the user who created this run
design", "type" : "string"
},
"startedAt" : {
  "title" : "Started at",
  "description" : "Time when this run design was
started", "type" : "string",
  "format" : "date-time"
},
"completedAt" : {
  "title" : "Completed at",
  "description" : "Time when this run design was
completed", "type" : "string",
  "format" : "date-time"
},
"transfersCompletedAt" : {
  "title" : "Transfers Completed At",
  "description" : "Time when this run design's transfers were
completed", "type" : "string",
  "format" : "date-time"
},
"summary" : {
  "title" : "Run Design Summary",
  "description" : "Summary string describing this
run design", "type" : "string"
},
"reserved" : {
  "title" : "Reserved State",
  "description" : "Reserved state of this run
design", "type" : "boolean"
},
"status" : {
  "title" : "Run Design Status",
  "description" : "Status of run design, e.g.
Ready", "type" : "string"
},
"instrumentName" : {
  "title" : "Instrument Name",
  "description" : "Name of the instrument where this run design defined",

  "type" : "string"
}
```

```

    },
    "instrumentSerialNumber" : {
      "title" : "Instrument Serial Number",
      "description" : "Serial number of the instrument",
      "type" : "string"
    },
    "instrumentSwVersion" : {
      "title" : "Instrument Software Version",
      "description" : "Version number of instrument control software",
      "type" : "string"
    },
    "primaryAnalysisSwVersion" : {
      "title" : "Primary Analysis Software Version",
      "description" : "Version number of primary analysis software",
      "type" : "string"
    },
    "totalCells" : {
      "title" : "Total Cells",
      "description" : "Total number of cells",
      "type" : "integer"
    },
    "numCellsCompleted" : {
      "title" : "Number Cells Completed",
      "description" : "Number of cells completed",
      "type" : "integer"
    },
    "numCellsFailed" : {
      "title" : "Number Cells Failed",
      "description" : "Number of cells failed",
      "type" : "integer"
    },
    "context" : {
      "title" : "Run Design Context",
      "description" : "Context of this run design",
      "type" : "string"
    }
  },
  "required" : [
    "name",
    "uniqueId",
    "createdAt",
    "createdBy",
    "startedAt",
    "completedAt",
    "transfersCompletedAt",
    "summary",
    "reserved",
    "status",
    "instrumentName",
    "instrumentSerialNumber",
    "instrumentSwVersion",
    "primaryAnalysisSwVersion",
    "totalCells",
    "numCellsCompleted",
    "numCellsFailed",
    "context"
  ]
},
"additionalItems" : false
}

```

```
[{
  "reserved" : true,
  "name" : "2016-11-08_3150473_2kLambda_A12",
  "completedAt" : "2016-11-08T21:50:11.172Z",
  "instrumentName" : "Deadpool12",
  "context" : "r54012_20161108_174450",
  "instrumentSwVersion" : "3.2.0.187213",
  "numCellsCompleted" : 1,
  "totalCells" : 1,
  "primaryAnalysisSwVersion" : "3.2.0-186859",
  "status" : "Complete",
  "createdAt" : "2016-11-08T17:41:33.613Z",
  "startedAt" : "2016-11-08T17:50:57.955Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,
  "instrumentSerialNumber" : "54012",
  "transfersCompletedAt" : "2016-11-08T22:01:35.035Z",
  "uniqueId" : "97286726-b243-45b3-82f7-8b5f58c56d53",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "SMS_GoatVer_VVC034_3150433_2kLambda_400pm_SNR10.5",
  "completedAt" : "2016-10-18T11:20:50.684Z",
  "instrumentName" : "batman",
  "context" : "r54011_20161017_233934",
  "instrumentSwVersion" : "3.2.0.186960",
  "numCellsCompleted" : 4,
  "totalCells" : 4,
  "primaryAnalysisSwVersion" : "3.2.0-186859",
  "status" : "Complete",
  "createdAt" : "2016-10-17T23:36:35.000Z",
  "startedAt" : "2016-10-17T23:47:01.493Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,
  "instrumentSerialNumber" : "54011",
  "transfersCompletedAt" : "2016-10-18T11:16:54.232Z",
  "uniqueId" : "b81de65a-8018-4843-9da7-ff2647a9d01e",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,
  "name" : "2016_12_13_A6_SAT_Ecoli_3150533_v2",
  "completedAt" : "2016-12-14T00:40:12.769Z",
  "instrumentName" : "Alpha6",
  "context" : "r54006_20161214_002551",
  "instrumentSwVersion" : "4.0.0.189488",
  "numCellsCompleted" : 0,
  "totalCells" : 4,
  "primaryAnalysisSwVersion" : "4.0.0-3cb9862",
  "status" : "Terminated",
  "createdAt" : "2016-12-13T20:35:46.038Z",
  "startedAt" : "2016-12-14T00:35:13.178Z",
  "createdBy" : "unknown",
  "numCellsFailed" : 0,
  "instrumentSerialNumber" : "54006",
  "uniqueId" : "b492ba07-8c8a-4b9f-a791-8bb94d253273",
  "summary" : "lambdaNEB"
}, {
  "reserved" : true,

  "name" : "2017-01-09_A3_SAT_3150571_AutoChipWash_NewChips",
  "completedAt" : "2017-01-10T11:11:04.729Z",
```

```

    "instrumentName" : "alpha3",
    "context" : "r54003_20170110_003728",
    "instrumentSwVersion" : "4.0.0.189488",
    "numCellsCompleted" : 4,
    "totalCells" : 4,
    "primaryAnalysisSwVersion" : "4.0.0-189308",
    "status" : "Complete",
    "createdAt" : "2017-01-10T00:28:26.064Z",
    "startedAt" : "2017-01-10T00:47:06.187Z",
    "createdBy" : "unknown",
    "numCellsFailed" : 0,
    "instrumentSerialNumber" : "54003",
    "transfersCompletedAt" : "2017-01-10T11:37:54.449Z",
    "uniqueId" : "8da8d74f-c664-4127-947c-6962cae14e0f",
    "summary" : "lambdaNEB"
  }
]

```

2.1.5 Retrieve Run Design Details

This API is used to retrieve the complete record of a run design by its Unique ID.

Note: Valid run design Unique Id values can be found in “uniqueId” fields of objects returned by the [List All Run Designs](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/runs/{uniqueId}">http://<host>:<port>/smrt-link/runs/{uniqueId}

Path Parameters	Data Type	Description	Required	Multi-valued	Example Value
uniqueId	string UUID	Unique identifier of the run design; valid Unique ID values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.	Yes	No	3f99abbf-1265-42bc-8d40-24c3b27aced6

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request

Example Request

Retrieve the complete record of the run design with Unique Id = 3f99abbf-1265-42bc-8d40-24c3b27aced6: GET

<http://SMRTLinkServername.domain:8081/smrt-link/runs/3f99abbf-1265-42bc-8d40-24c3b27aced6>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource <run design uniqueId>	Occurs when a non-existing run design Unique Id was passed in the request. Note: Valid run design Unique Id values can be found in "uniqueId" fields of objects returned by the List All Run Designs request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Mon, 25 Jan 2016 19:44:23 GMT
Content-Length	Length of the response body in octets	Yes	18173
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Retrieve run design details - response schema

Example Response

See [Retrieve run design details - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	<ul style="list-style-type: none"> integer "id" -> UUID "uniqueId" in request Changed response and response schema 	No

Retrieve run design details - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.details",
  "version" : "0.1.0",
  "title" : "Run Design Details",
  "description" : "Complete record of Run Design object",
  "type" : "object",
```



```
"properties": {
  "name": {
    {
      "title": "Run Design Name",
      "description": "Name of this run design", "type": "string"
    },
    "uniqueId": {
      "title": "Run Design UUID",
      "description": "UUID of this run design", "type": "string",
      "format": "uuid",
      "pattern": "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt": {
      "title": "Created at",
      "description": "Time when this run design was created", "type": "string",
      "format": "date-time"
    },
    "createdBy": {
      "title": "Created by",
      "description": "Login name of the user who created this run design", "type": "string"
    },
    "startedAt": {
      "title": "Started at",
      "description": "Time when this run design was started",
      "type": "string",
      "format": "date-time"
    },
    "completedAt": {
      "title": "Completed at",
      "description": "Time when this run design was completed",
      "type": "string",
      "format": "date-time"
    },
    "transfersCompletedAt": {
      "title": "Transfers Completed At",
      "description": "Time when this run design's transfers were completed",
      "type": "string",
      "format": "date-time"
    },
    "summary": {
      "title": "Run Design Summary",
      "description": "Summary string describing this run design",
      "type": "string"
    },
    "reserved": {
      "title": "Reserved State",
      "description": "Reserved state of this run design",
      "type": "boolean"
    },
    "status": {
      "title": "Run Design Status",
      "description": "Status of run design, e.g. Ready",
      "type": "string"
    },
    "instrumentName": {
```

```
    "title" : "Instrument Name",
    "description" : "Name of the instrument where this run design defined",
    "type" : "string"
  },
  "instrumentSerialNumber" : {
    "title" : "Instrument Serial Number",
    "description" : "Serial number of the instrument",
    "type" : "string"
  },
  "instrumentSwVersion" : {
    "title" : "Instrument Software Version",
    "description" : "Version number of instrument control software",
    "type" : "string"
  },
  "primaryAnalysisSwVersion" : {
    "title" : "Primary Analysis Software Version",
    "description" : "Version number of primary analysis software",
    "type" : "string"
  },
  "totalCells" : {
    "title" : "Total Cells",
    "description" : "Total number of cells",

    "type" : "integer"
```

```

    },
    "numCellsCompleted" : {
      "title" : "Number Cells Completed",
      "description" : "Number of cells completed",
      "type" : "integer"
    },
    "numCellsFailed" : {
      "title" : "Number Cells Failed",
      "description" : "Number of cells failed",
      "type" : "integer"
    },
    "context" : {
      "title" : "Run Design Context",
      "description" : "Context of this run design",
      "type" : "string"
    },
    "dataModel" : {
      "title" : "Run Data Model",
      "description" : "Serialized XML file specifying metadata of this run design",
      "type" : "string"
    }
  },
  "required" : [
    "name",
    "uniqueId",
    "createdAt",
    "createdBy",
    "startedAt",
    "completedAt",
    "transfersCompletedAt",
    "summary",
    "reserved",
    "status",
    "instrumentName",
    "instrumentSerialNumber",
    "instrumentSwVersion",
    "primaryAnalysisSwVersion",
    "totalCells",
    "numCellsCompleted",
    "numCellsFailed",
    "context",
    "dataModel"
  ],
  "additionalProperties" : false
}

```

Note: The “runDataModel” field is specified according to the PacBioDataModel.xsd schema.

Retrieve run design details - response example

```

{
  "reserved" : true,
  "name" : "DryRun 01.10.2017 14:30",
  "completedAt" : "2017-01-11T05:11:00.562Z",
  "instrumentName" : "54119",

```

```

"context" : "r54119_20170110_234346",
"instrumentSwVersion" : "4.0.0.189873",
"numCellsCompleted" : 3,
"totalCells" : 3,
"primaryAnalysisSwVersion" : "4.0.0-189308",
"status" : "Complete",
"createdAt" : "2017-01-10T23:43:33.741Z",
"startedAt" : "2017-01-10T23:53:12.019Z",
"createdBy" : "unknown",
"numCellsFailed" : 0,
"instrumentSerialNumber" : "54119",
"transfersCompletedAt" : "2017-01-11T05:16:35.120Z",
"dataModel" : "<serialized Run Design XML file - see Note below>",
"uniqueId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6"
}

```

Note: The “runDataModel” field contains a serialized Run Design XML file. See example of Run Design XML file in [Create Run Design](#), section “Create run design - request example”.

2.1.6 Get Run Design Collections

Get the list of all collections of a run design identified by its Unique Id.

Note: Valid run design Unique Id values can be found in “uniqueId” fields of objects returned by the [List All Run Designs](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/runs/{uniqueId}/collections">http://<host>:<port>/smrt-link/runs/{uniqueId}/collections

Path Parameters	Data Type	Description	Required	Multi-valued	Example Value
uniqueId	string UUID	Unique identifier of the run design; valid Unique ID values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.	Yes	No	3f99abbf-1265-42bc-8d40-24c3b27aced6

Request Headers	Description	Required	Example Value
Accept	Content types acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get collections of the run design with Unique ID = 3f99abbf-1265-42bc-8d40-

24c3b27aced6: GET

<http://SMRTLServername.domain:8081/smrt-link/runs/3f99abbf-1265-42bc-8d40-24c3b27aced6/collections>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request completed successfully.
404 Not Found	Unable to find resource <run design uniqueId>	Occurs when a non-existing run design Unique Id was passed in the request. Note: Valid run design Unique Id values can be found in "uniqueId" fields of objects returned by the List All Run Designs request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 10 Feb 2017 01:31:51 GMT
Content-Length	Length of the response body in octets	Yes	1419
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Get run design collections - response schema

Example Response

See [Get run design collections - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link	New service endpoint	N/A

Get run design collections - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.collections.list",
  "version" : "0.1.0",
  "title" : "Collections List",
  "description" : "Array of Collection objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
```

```
"name" : {
  "title" : "Collection Name",
  "description" : "Name of this
collection", "type" : "string"
},
"uniqueId" : {
  "title" : "Collection UUID",
  "description" : "UUID of this
collection", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$"
},
"runId" : {
  "title" : "Run Design UUID",
  "description" : "UUID of the run design that this collection
belongs to", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$"
},
"startedAt" : {
  "title" : "Started at",
  "description" : "Time when this collection was
started", "type" : "string",
  "format" : "date-time"
},
"completedAt" : {
  "title" : "Completed at",
  "description" : "Time when this collection was
completed", "type" : "string",
  "format" : "date-time"
},
"movieMinutes" : {
  "title" : "Movie Minutes",
  "description" : "Length of this collection's movie in minutes",
  "type" : "integer"
},
"status" : {
  "title" : "Collection Status",
  "description" : "Status of this collection, e.g. Complete",
  "type" : "string"
},
"instrumentName" : {
  "title" : "Instrument Name",
  "description" : "Name of the instrument where this collection ran",
  "type" : "string"
},
"instrumentId" : {
  "title" : "Instrument Id",
  "description" : "Identifier of the instrument where this collection ran",
  "type" : "string"
},
"well" : {
  "title" : "Well",
  "description" : "Well corresponding to this collection",
  "type" : "string"
},
"context" : {
  "title" : "Collection Context",
  "description" : "Context of this collection",
```

```

    "type" : "string"
  },
  "collectionPathUri" : {
    "title" : "Collection Path URI",
    "description" : "URI path of this collection",
    "type" : "string"
  }
},
"required" : [
  "name",
  "uniqueId",
  "runId",
  "startedAt",
  "completedAt",
  "movieMinutes",
  "status",
  "instrumentName",
  "instrumentId",
  "well",
  "context",
  "collectionPathUri"
]
},
"additionalItems" : false
}

```

Get run design collections - response example

```

[ {
  "name" : "54119_DryRun_20170110",
  "completedAt" : "2017-01-11T02:10:15.621Z",
  "instrumentName" : "54119",
  "context" : "m54119_170110_235312",
  "well" : "A01",
  "status" : "Complete",
  "instrumentId" : "54119",
  "startedAt" : "2017-01-10T23:53:12.019Z",
  "uniqueId" : "17da927c-a695-4005-829d-7ebb81b5ad47",
  "collectionPathUri" : "/mnt/appslab/lims/smrt_data/r54119_20170110_234346/1_A01",
  "runId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6",
  "movieMinutes" : 30
}, {
  "name" : "54119_DryRun_20170110",
  "completedAt" : "2017-01-11T03:42:09.078Z",

  "instrumentName" : "54119",
  "context" : "m54119_170111_012427",
  "well" : "B01",
  "status" : "Complete",
  "instrumentId" : "54119",
  "startedAt" : "2017-01-10T23:53:12.019Z",
  "uniqueId" : "a6cb49d0-4859-4e6d-af2d-d81c561a951b",
  "collectionPathUri" : "/mnt/appslab/lims/smrt_data/r54119_20170110_234346/2_B01",
  "runId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6",
  "movieMinutes" : 30
}, {
  "name" : "54119_DryRun_20170110",
  "completedAt" : "2017-01-11T05:16:35.117Z",
  "instrumentName" : "54119",
  "context" : "m54119_170111_025702",
  "well" : "C01",

```

```
"status" : "Complete",  
"instrumentId" : "54119",  
"startedAt" : "2017-01-10T23:53:12.019Z",  
"uniqueId" : "c9975a4d-7555-4e8d-8c67-da3b6f4c6435",  
"collectionPathUri" : "/mnt/appslab/lms/smrt_data/r54119_20170110_234346/3_C01",  
"runId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6",  
"movieMinutes" : 30  
}  
]
```

2.1.7 Get Run Design Collection by ID

Get a collection of a run design identified by Run ID and Collection ID.

Note: Valid Run Id values can be found in “uniqueId” fields of objects returned by the [List All Run Designs](#) request. Valid Collection Id values can be found in “uniqueId” fields of objects returned by the [Get Run Design Collections](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/runs/{runId}/collections/{collectionId}">http://<host>:<port>/smrt-link/runs/{runId}/collections/{collectionId}

Path Paramters	Data Type	Description	Required	Multi-valued	Example Value
runId	string UUID	Unique identifier of the run design; valid Run Id values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.	Yes	No	3f99abbf-1265-42bc-8d40-24c3b27aced6
collectionId	string UUID	Unique identifier of the collection; valid Collection Id values can be found in “uniqueId” fields of objects returned by the Get Run Design Collections request.	Yes	No	17da927c-a695-4005-829d-7ebb81b5ad47

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request

Example Request

Get the collection with Collection Id = 17da927c-a695-4005-829d-7ebb81b5ad47 of the run design with Run Id = 3f99abbf-1265-42bc-8d40-24c3b27aced6:

GET <http://SMRTLinkServername.domain:8081/smrt-link/runs/3f99abbf-1265-42bc-8d40-24c3b27aced6/collections/17da927c-a695-4005-829d-7ebb81b5ad47>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource <Run Id>	Occurs when a non-existing Run Id was passed in the request. Note: Valid Run Id values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.
404 Not Found	Unable to find resource <Collection Id>	Occurs when a non-existing Collection Id was passed in the request. Note: Valid Collection Id values can be found in “uniqueId” fields of objects returned by the Get Run Design Collections request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 10 Feb 2017 01:36:07 GMT
Content-Length	Length of the response body in octets	Yes	471
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Get run design collection by id - response schema

Example Response

See [Get run design collection by id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v4.0	New service endpoint	N/A

Get run design collection by ID - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.collection.object",
  "version" : "0.1.0",
  "title" : "Collection Object",
  "description" : "Collection object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Collection Name",
      "description" : "Name of this collection",
      "type" : "string"
    },
    "uniqueId" : {
      "title" : "Collection UUID",
      "description" : "UUID of this collection",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "runId" : {
      "title" : "Run Design UUID",

      "description" : "UUID of the run design that this collection belongs to",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    }
  }
}
```

```
{,
  "startedAt" : {
    "title" : "Started at",
    "description" : "Time when this collection was
started", "type" : "string",
    "format" : "date-time"
  },
  "completedAt" : {
    "title" : "Completed at",
    "description" : "Time when this collection was
completed", "type" : "string",
    "format" : "date-time"
  },
  "movieMinutes" : {
    "title" : "Movie Minutes",
    "description" : "Length of this collection's movie in
minutes", "type" : "integer"
  },
  "status" : {
    "title" : "Collection Status",
    "description" : "Status of this collection, e.g.
Complete", "type" : "string"
  },
  "instrumentName" : {
    "title" : "Instrument Name",
    "description" : "Name of the instrument where this
collection ran", "type" : "string"
  },
  "instrumentId" : {
    "title" : "Instrument Id",
```

```
    "description" : "Identifier of the instrument where this collection ran",
    "type" : "string"
  },
  "well" : {
    "title" : "Well",
    "description" : "Well corresponding to this collection",
    "type" : "string"
  },
  "context" : {
    "title" : "Collection Context",
    "description" : "Context of this collection",
    "type" : "string"
  },
  "collectionPathUri" : {
    "title" : "Collection Path URI",
    "description" : "URI path of this collection",
    "type" : "string"
  }
},
"required" : [
  "name",
  "uniqueId",
  "runId",
  "startedAt",
  "completedAt",
  "movieMinutes",
  "status",
  "instrumentName",
  "instrumentId",
  "well",
  "context",
  "collectionPathUri"
],
"additionalProperties" : false
}
```

Get run design collection by id - response example

```
{
  "name" : "54119_DryRun_20170110",
  "completedAt" : "2017-01-11T02:10:15.621Z",
  "instrumentName" : "54119",
  "context" : "m54119_170110_235312",
  "well" : "A01",
  "status" : "Complete",
  "instrumentId" : "54119",
  "startedAt" : "2017-01-10T23:53:12.019Z",
  "uniqueId" : "17da927c-a695-4005-829d-7ebb81b5ad47",
  "collectionPathUri" : "/mnt/appslab/lims/smrt_data/r54119_20170110_234346/1_A01",
  "runId" : "3f99abbf-1265-42bc-8d40-24c3b27aced6",
  "movieMinutes" : 30
}
```

2.1.8 Update Run Design

Update the record of a run design by its Unique Id.

Note: Valid run design Unique Id values can be found in “uniqueId” fields of objects returned by the [List All Run Designs](#) request.

Request

Method	URL
POST	<a href="http://<host>:<port>/smrt-link/runs/{uniqueId}">http://<host>:<port>/smrt-link/runs/{uniqueId}

Path Parameters	Data Type	Description	Required	Multi-valued	Example Value
uniqueId	string UUID	Unique identifier of the run design. Valid Unique Id values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.	Yes	No	abc82037-9231-4124-a87c-2b4e6f00a66d

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Update run design - request schema

Example Request

See [Update run design - request example](#)

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. The updated run design object in a summary form will be returned in the response body.
404 Not Found	Unable to find resource <run design uniqueId>	Occurs when a non-existing run design Unique Id was passed in the request. Note: Valid run design Unique Id values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.
415 Un-supported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded
422: Unprocessable Entity	XML did not conform to schema: An error occurred unmarshalling the document	Occurs when the serialized XML file that was passed in the “runDataModel” field does not conform to the PacBioDataModel.xsd schema. Transformation of the object used for storage or transmission to an executable object was unsuccessful.

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 26 Jan 2016 17:24:02 GMT
Content-Length	Length of the response body in octets	Yes	175

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Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Update run design - response schema

Example Response

See [Update run design - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	<ul style="list-style-type: none"> integer “id” -> UUID “uniqueId” in request “runDataModel” -> “dataModel” in request Changed response and response schema 	No

Update run design - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.rundesign.update",
  "version" : "0.1.0",
  "title" : "Run Design Update",
  "description" : "A subset of Run Design object intended for updating a run design",
  "type" : "object",
  "properties" : {
    "reserved" : {
      "title" : "Reserved State",
      "description" : "Reserved state of this run design",
      "type" : "boolean"
    },
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "dataModel" : {
      "title" : "Run Data Model",
      "description" : "Serialized XML file specifying metadata of this run design",
      "type" : "string"
    },
    "summary" : {
      "title" : "Summary",
      "description" : "Summary description of this run design",
      "type" : "string"
    }
  },
  "optional" : [
    "reserved",
    "name",
    "dataModel",
    "summary"
  ],
  "additionalProperties" : false
}
```

Note: The “runDataModel” field is specified according to the PacBioDataModel.xsd schema.

Update run design - request example

Update the record of the run design with ID=1:

POST <http://SMRTLinkServername.domain:8081/smrt-link/runs/1>

```
{
  "dataModel" : "<serialized Run Design XML file - see Note below>",
  "name" : "Run_201601220309_D15",
  "summary" : "tkb_C5_circular_23x_I92782",
  "reserved" : true
}
```

Note: Each of the fields in the request object is optional, and any fields that are present will be updated.

Note: The “runDataModel” field contains a serialized Run Design XML file; see an example of Run Design XML file in [Create Run Design](#), section “Create run design - request example”.

Update run design - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.smrtlink.schemas.rundesign.summary",
  "version" : "0.1.0",
  "title" : "Run Design Summary",
  "description" : "Run Design object in summary form",
  "type" : "object",
  "properties": {
    "name" : {
      "title" : "Run Design Name",
      "description" : "Name of this run design",
      "type" : "string"
    },
    "uniqueId" : {
      "title" : "Run Design UUID",
      "description" : "UUID of this run design",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this run design was created",
      "type" : "string",
      "format" : "date-time"
    },
    "createdBy" : {
      "title" : "Created by",
      "description" : "Login name of the user who created this run design",
      "type" : "string"
    },
    "startedAt" : {
      "title" : "Started at",
      "description" : "Time when this run design was started",
      "type" : "string",
      "format" : "date-time"
    },
    "completedAt" : {
      "title" : "Completed at",
      "description" : "Time when this run design was completed",
      "type" : "string",
      "format" : "date-time"
    },
    "transfersCompletedAt" : {
      "title" : "Transfers Completed At",
      "description" : "Time when this run design's transfers were completed",
      "type" : "string",
      "format" : "date-time"
    },
    "summary" : {

```



```
    "title" : "Run Design Summary",
    "description" : "Summary string describing this run design",
    "type" : "string"
  },
  "reserved" : {
    "title" : "Reserved State",
    "description" : "Reserved state of this run design",
    "type" : "boolean"
  },
  "status" : {
    "title" : "Run Design Status",
    "description" : "Status of run design, e.g. Ready",
    "type" : "string"
  },
  "instrumentName" : {
    "title" : "Instrument Name",
    "description" : "Name of the instrument where this run design defined",
    "type" : "string"
  },
  "instrumentSerialNumber" : {
    "title" : "Instrument Serial Number",
    "description" : "Serial number of the instrument",
    "type" : "string"
  },
  "instrumentSwVersion" : {
    "title" : "Instrument Software Version",
    "description" : "Version number of instrument control software",
    "type" : "string"
  },
  "primaryAnalysisSwVersion" : {
    "title" : "Primary Analysis Software Version",
    "description" : "Version number of primary analysis software",
```

```

    "type" : "string"
  },
  "totalCells" : {
    "title" : "Total Cells",
    "description" : "Total number of cells",
    "type" : "integer"
  },
  {
    "title" : "Number Cells Completed",
    "description" : "Number of cells completed",
    "type" : "integer"
  },
  "numCellsFailed" : {
    "title" : "Number Cells Failed",
    "description" : "Number of cells failed",
    "type" : "integer"
  },
  "context" : {
    "title" : "Run Design Context",
    "description" : "Context of this run design",
    "type" : "string"
  }
},
"required" : [
  "name",
  "uniqueId",
  "createdAt",
  "createdBy",
  "startedAt",
  "completedAt",
  "transfersCompletedAt",
  "summary",
  "reserved",
  "status",
  "instrumentName",
  "instrumentSerialNumber",
  "instrumentSwVersion",
  "primaryAnalysisSwVersion",
  "totalCells",
  "numCellsCompleted",
  "numCellsFailed",
  "context"
]
"additionalProperties" : false
}

```

Update run design - response example

```

{
  "reserved" : true,
  "name" : "Run_201601220309_D15",
  "instrumentName" : "Inst54009",
  "context" : "r54009_20160122_031203",
  "instrumentSwVersion" : "String",
  "numCellsCompleted" : 0,
  "totalCells" : 4,

```

```

"primaryAnalysisSwVersion" : "String",
"status" : "Running",
"createdAt" : "0001-01-01T08:00:00.000Z",
"numCellsFailed" : 1,
"instrumentSerialNumber" : "54009",
"uniqueId" : "abc82037-9231-4124-a87c-2b4e6f00a66d",
} "summary" : "tkb_C5_circular_23x_I92782"

```

2.1.9 Delete Run Design

Delete a run design object identified by its Unique Id.

Note: Valid run design Unique Id values can be found in “uniqueId” fields of objects returned by the [List All Run Designs](#) request.

Request

Method	URL
DELETE	<a href="http://<host>:<port>/smrt-link/runs/{uniqueId}">http://<host>:<port>/smrt-link/runs/{uniqueId}

Path Parameters	Data Type	Description	Required	Multi-valued	Example Value
uniqueId	string UUID	Unique identifier of the run design; valid Unique Id values can be found in “uniqueId” fields of objects returned by the List All Run Designs request.	Yes	No	abc82037-9231-4124-a87c-2b4e6f00a66d

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is DELETE request.

Example Request

Delete the run design object with Unique Id = abc82037-9231-4124-a87c-2b4e6f00a66d:

DELETE <http://SMRTLinkServername.domain:8081/smrt-link/runs/abc82037-9231-4124-a87c-2b4e6f00a66d>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource <run design uniqueId>	Occurs when a non-existing run design Unique Id was passed in the request. Note: Valid run design Unique Id values can be found in "uniqueId" fields of objects returned by the List All Run Designs request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 02 Feb 2017 00:48:58 GMT
Content-Length	Length of the response body in octets	Yes	87
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	Response schema is N/A, as this is DELETE request.

Example Response

See [Delete run design - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v4.0	New service endpoint	N/A

Delete run design - response example

```
{
  "message" : "Successfully deleted run design abc82037-9231-4124-a87c-2b4e6f00a66d"
}
```

2.2 Registry Service

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2.2.1 Overview of Registry Service

Use Cases

The Registry Service enables registering instruments with SMRT Link, editing instrument settings, viewing instruments registered with SMRT Link, redirecting requests to specific instruments, and unregistering instruments.

The main use case will be getting the list of all instruments registered with SMRT Link.

Key Concepts

The Registry Service uses a generic concept of *resource*.

A **Resource** is an instrument registered with SMRT Link.

The Registry Service provides the following generic set of operations over resources:

- Create a resource: Register an instrument with SMRT link;
- Update a resource: Edit settings of an instrument registered with SMRT link;
- List all resources: Get the list of all instruments registered with SMRT Link;
- Fetch a resource by its user-defined Id: View settings of a specific instrument identified by User Id;
- Fetch a resource by its server-provided UUID: View settings of a specific instrument identified by Server UUID;
- Redirect a request to a resource: Forward request to a specific instrument registered with SMRT link;
- Delete a resource: Unregister an instrument with SMRT link

2.2.2 List All Resources

Get the list of all resources available on the system.

Note: Resource in its specific meaning is an instrument registered with SMRT Link. Use this endpoint to get the list of all instruments registered with SMRT Link.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/registry-service/resources">http://<host>:<port>/smrt-link/registry-service/resources

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Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all resources available on the system:

GET <http://SMRTLinkServername.domain:8081/smart-link/registry-service/resources>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 25 Feb 2016 01:35:47 GMT
Content-Length	Length of the response body in octets	Yes	2990
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all resources - response schema

Example Response

See [List all resources - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint	N/A
SMRT Link v4.0	No changes from previous release	N/A

List all resources - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resources.list",
  "version" : "0.1.0",
  "title" : "Resources List",
```

```

"description" : "Array of Resource
objects", "type" : "array",

"minItems" : 1,
"items" : {
  "type" :
  "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this
resource", "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this
resource", "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this
resource", "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this
resource", "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource
was created", "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this resource was updated",
      "type" : "string",
      "format" : "date-time"
    }
  },
  "required" : [
    "resourceId",
    "uuid",
    "host",
    "port",
    "createdAt",
    "updatedAt"
  ]
},
"additionalItems" : false
}

```

List all resources - response example

```
[{
  "resourceId" : "54033",
  "updatedAt" : "2016-02-23T09:42:24.538",
  "uuid" : "93a2d3f6-9837-4efc-86b4-e6644a4ed389",
  "host" : "icc-54033.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T09:42:24.538"
}, {
  "resourceId" : "54003",
  "updatedAt" : "2016-02-24T01:06:56.273",
  "uuid" : "0dc7a9a7-6a60-4f42-b209-f11f648e3774",
  "host" : "icc-alpha3",
  "port" : 8888,
  "createdAt" : "2016-02-24T01:06:56.273"
}, {
  "resourceId" : "54008",
  "updatedAt" : "2016-02-23T10:28:51.605",
  "uuid" : "b2d20fa6-15c3-4442-b985-edc1e3ca8dcf",
  "host" : "icc-alpha8",
  "port" : 8888,
  "createdAt" : "2016-02-23T10:28:51.605"
}, {
  "resourceId" : "54007",
  "updatedAt" : "2016-02-23T14:36:25.147",
  "uuid" : "8ce7cb8d-5493-4ab6-95fe-98cb8f1922cb",
  "host" : "icc-alpha7.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T14:36:25.147"
}, {
  "resourceId" : "54002i",
  "updatedAt" : "2016-02-23T15:22:10.123",
  "uuid" : "d480e5f6-b11e-4fcc-bd3a-d07ffa28ad82",
  "host" : "alpha2i.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-23T15:22:10.123"
}
]
```

2.2.3 Create Resource

Create a new resource.

Request

Method	URL
POST	<a href="http://<host>:<port>/smrt-link/registry-service/resources">http://<host>:<port>/smrt-link/registry-service/resources

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request	Yes	application/json
Accept	Content-Types that are acceptable for the response	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Create resource - request schema

Example Request

See [Create resource - request example](#)

Response

HTTP Status Code	Error Message	Description
201 Created	None	Request was completed successfully. The newly-created resource object will be returned in the response body.
400 Bad Request	The request content was incorrect: Object is missing required member 'resourceId'.	Occurs when the "resourceId" field was omitted or misspelled in the request body, for example the "resourceIdentifier" field was passed instead.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Unsupported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded
422: Unprocessable Entity	Resource with id 54031 already exists	Occurs when a resource object with "resourceId" value passed in the request already exists. Note: Resource Id values that are already in use can be found in "resourceId" fields of objects returned by the List All Resources request.

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 26 Feb 2016 18:21:36 GMT
Content-Length	Length of the response body in octets	Yes	217
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Create resource - response schema

Example Response

See [Create resource - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	No changes from previous release.	N/A

Create resource - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.new",
  "version" : "0.1.0",
  "title" : "New Resource",
  "description" : "A subset of Resource object required to create a new resource",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name to be assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number to be assigned to this resource",
      "type" : "integer"
    }
  },
  "required" : [
    "resourceId",
    "host",
    "port"
  ],
  "additionalProperties" : false
}
```

Create resource - request example

Create a new resource:

POST <http://SMRTLlinkServername.domain:8081/smrt-link/registry-service/resources>

```
{
  "resourceId" : "54031",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888
}
```

Note: A user-defined resource Id passed in the request body must be unique. Resource Id values that are already in use can be found in “resourceId” fields of objects returned by [List All Resources](#) request.

Create resource - response schema

```

{
  "$schema" : "http://json-schema.org/draft-
04/schema#", "id" :
  "pachio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource
object schema", "type" :
  "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this
resource", "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this
resource", "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this
resource", "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this
resource", "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource was
created", "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this resource was
updated", "type" : "string",
      "format" : "date-time"
    }
  },
  "required"
  : [
    "resource
    Id",
    "uuid",

```

```

    "host",
    "port",
    "createdAt",
    "updatedAt"
  ],
  "additionalProperties" : false
}

```

Create resource - response example

```

{
  "resourceId" : "54031",
  "updatedAt" : "2016-02-26T10:21:36.550",
  "uuid" : "d0321f1f-b2e5-4bab-81cb-bf932774362d",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-26T10:21:36.550"
}

```

Note: The “uuid” field in the newly-created resource object will be automatically populated by server-generated UUID, while “createdAt” and “updatedAt” fields will be automatically populated by the current system time.

2.2.4 Fetch Resource by ID

Fetch the record of a resource object by its user-defined resource Id.

Note: Valid resource Id values can be found in “resourceId” fields of objects returned by the [List All Resources](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/registry-service/resources?resourceId={ID}">http://<host>:<port>/smrt-link/registry-service/resources?resourceId={ID}

Query Parameters	Data Type	Description	Required	Multi-valued	Default Value	Possible Values
resourceId	string	User-defined resource Id	Yes	No	N/A	my_resource_1, 54033

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch the record of a resource object with user-defined resource Id = 5433:

GET <http://SMRTLinkServername.domain:8081/smrt-link/registry-service/resources?resourceId=54033>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there are no resources corresponding to the resource Id value passed in the request, then the response still will be 200 OK, with an empty array of resources in the response body. Valid resource Id values can be found in "resourceId" fields of objects returned by the List All Resources request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 25 Feb 2016 22:52:35 GMT
Content-Length	Length of the response body in octets	Yes	219
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch resource by id - response schema

Example Response

See [Fetch resource by id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint	N/A
SMRT Link v4.0	No changes from previous release	N/A

Fetch resource by id - response schema

Note: The response will be resource array with one or zero elements.

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" :
  "pacbio.smrtlink.schemas.resource.one_element_array",
  "version" : "0.1.0",
  "title" : "One-Element Resource Array",
  "description" : "Resource array containing one or zero
elements", "type" : "array",
  "minItems" : 0,
  "maxItems" : 1,
  "items" : {
    "type" :
    "object",
    "properties" : {
      "resourceId" : {
        "title" : "Resource Id",
        "description" : "User-defined identifier of this
resource", "type" : "string"
      },
      "uuid" : {
        "title" : "Resource UUID",
        "description" : "Server-generated UUID of this
resource", "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "host" : {
        "title" : "Host",
        "description" : "Host name assigned to this
resource", "type" : "string",
        "format" : "hostname"
      },
      "port" : {
        "title" : "Port",
        "description" : "Port number assigned to this
resource", "type" : "integer"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this resource was created",

```

```

    "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this resource was updated",
    "type" : "string",
    "format" : "date-time"
  }
},
"required" : [
  "resourceId",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
]
},
}

```

Fetch resource by ID - response example

```

[ {
  "resourceId" : "54033",
  "updatedAt" : "2016-02-25T14:06:18.281",
  "uuid" : "5eece0a5-e992-4b14-9216-fb2be4919ae5",
  "host" : "icc-54033.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-25T14:06:18.281"
}
]

```

2.2.5 Fetch Resource by UUID

Fetch the record of a resource object by its server-provided UUID.

Note: Valid UUID values can be found in “uuid” fields of objects returned by the [List All Resources](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/smrt-link/registry-service/resources/{uuid}">http://<host>:<port>/smrt-link/registry-service/resources/{uuid}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
uuid	string	Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by the List All Resources request.	Yes	No	7afeb98b-b63b-4d27-9d51-0d40744b3bbd 1281c476-0e66-472f-971d-1268f18fc82e

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Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch the record of a resource object with server-provided UUID = d3928320-2ba2-4486-ba5d-9737d7e44f18: GET <http://SMRTLinkServername.domain:8081/smart-link/registry-service/resources/d3928320-2ba2-4486-ba5d-9737d7e44f18>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource d3928320-2ba2-4486-ba5d-9737d7e44f19	There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in "uuid" fields of objects returned by the List All Resources request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 26 Feb 2016 02:58:01 GMT
Content-Length	Length of the response body in octets	Yes	217
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch resource by uuid - response schema

Example Response

See [Fetch resource by uuid - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	No changes from previous release.	N/A

Fetch resource by uuid - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource object schema",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this resource",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this resource",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this resource was updated",
      "type" : "string",
      "format" : "date-time"
    }
  },
  "required"
  : [
    "resourceId",
    "uuid",
    "host",
    "port",
    "createdAt",
    "updatedAt"
  ]
}

```

```

    ],
    "additionalProperties" : false
  }

```

Fetch resource by uuid - response example

```

{
  "resourceId" : "54031",
  "updatedAt" : "2016-02-25T15:20:07.675",
  "uuid" : "d3928320-2ba2-4486-ba5d-9737d7e44f18",
  "host" : "icc-54031.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-25T15:20:07.675"
}

```

2.2.6 Redirect Request to Resource

Send a proxy request to a resource identified by its server-provided UUID.

Note: Valid UUID values can be found in “uuid” fields of objects returned by the [List All Resources](#) request.

Request

Method	URI
GET PUT POST DELETE	<a href="http://<host>:<port>/smrt-link/registry-service/resources/{uuid}/proxy/<path_to_resource>">http://<host>:<port>/smrt-link/registry-service/resources/{uuid}/proxy/<path_to_resource>

Explanation

Given a resource such as:

```

{
  "resourceId" : "54002i",
  "updatedAt" : "2016-02-29T10:06:55.165",
  "uuid" : "f9772193-21b9-4250-bbc8-9630086a2ba8",
  "host" : "alpha2i.nanofluidics.com",
  "port" : 8888,
  "createdAt" : "2016-02-29T10:06:55.165"
}

```

Any request sent to the endpoint:

/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy will be forwarded to this URL: <http://InstrumentName.DeomainName:8888/>

What is supported in a proxy request:

- All HTTP methods are supported, including POST with data.
- Also, path and query parameters may be attached to the request.
- Any headers, including authentication, will also be forwarded.

For example:

/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-

9630086a2ba8/proxy/path/to/resource?param=val will be forwarded to

<http://InstrumentName.DeomainName:8888/path/to/resource?param=val>

Note: As a resource is an instrument registered with SMRT Link, the request will be redirected to host:port of an instrument, which supports Instrument Web Services APIs. The list of supported endpoints is provided in the [ICS API Table](#).

Path and Query Parameters

Required path parameter is the resource's server-provided UUID, described in the table below. Other path parameters and/or query parameters depend on the request being redirected, and will be forwarded as they are.

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
uuid	string	Server-provided UUID; valid UUID values can be found in "uuid" fields of objects returned by the List All Resources request.	Yes	No	7afeb98b-b63b- 4d27-9d51-0d40744b3bbd 1281c476-0e66-472f-971d-1268f18fc82e

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Depends on the request being redirected.

Example Request

See [Redirect request to resource - requests and responses examples](#)

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource d3928320-2ba2-4486-ba5d-9737d7e44f19	There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in "uuid" fields of objects returned by the List All Resources request.
404 Not Found	Response does not contain any data	Occurs when resource <path_to_resource> specified in the proxy request was not found.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Un-supported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Note: Other response status codes are possible, and they will be specific to the request being redirected.

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Response Headers	Description	Required	Example Value
Access-Control-Allow-Headers	Specifies which HTTP headers are supported.	Yes	Origin, Content-Type, Accept
Access-Control-Allow-Methods	Specifies which HTTP methods are supported.	Yes	GET, PUT, POST, DELETE, OPTIONS
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Mon, 29 Feb 2016 20:41:41 GMT
Content-Length	Length of the response body in octets	Yes	15018
Content-Type	MIME type of this content	Yes	application/octet-stream
Server	Server name	Yes	spray-can/1.3.2
Keep-Alive	Control options for the current connection	Yes	timeout=15,max=100

Media Type	Response Body Representation / Schema
application/json	Depends on the request being redirected.

Example Response

See [Redirect request to resource - requests and responses examples](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	<ul style="list-style-type: none"> Updated ICS API table with additional endpoints. "runDataModel" -> "dataModel" in /proxy/run response. Changed response schema of some redirected requests. 	No

ICS API Table

The partial list of supported ICS APIs is provided as an example of the available instrument endpoints.

Complete list of the ICS API endpoints, along with the JSON request/response schema, can be found at following help page on the instrument, e.g. <http://icc-INSTRUMENTNAME:8888/help>.

Method	URI	Description
GET	alarms	Returns list of system alarms
POST	alarms	Posts an alarm
GET	alarms/{aid}	Returns the alarm with the given name
PUT	alarms/{aid}	Changes an alarm

Continued on next page

Table 2.1 – continued from previous page

Method	URI	Description
GET	alarms/{aid}/message	Returns the message of alarm with the given name
GET	alarms/{aid}/severity	Returns the severity of alarm with the given name
GET	barcode/bindingkit	Returns a binding kit given a barcode
GET	barcode/prepkit	Returns a template prep kit given a barcode
GET	barcode/sequencekit	Returns a sequencing kit given a barcode
GET	clock	Returns current time
PUT	clock	Sets the current time
GET	clock/cities	Gets the current time for set of cities
GET	clock/compare	Returns 1 if time after current, -1 if before, 0 if equal
GET	instrument/configuration	Returns the instrument configuration data
GET	instrument/configuration/configfiles/{type}	Returns array of config information for the data type
GET	instrument/configuration/configfiles/{type}	Returns array of config information for the data type and filename
POST	instrument/configuration/configfiles/{type}	Returns results from a configuration update
Continued on next page		

Table 2.1 – continued from previous page

Method	URI	Description
GET	instrument/configuration/ configfiles/{type}/{id}	Returns the config file content
GET	instrument/configuration/name	Returns the instrument name (customer-provided)
POST	instrument/configuration/name	Sets the instrument name (customer-provided)
GET	instrument/configuration/smrtlink	Returns the SMRT Link host address
POST	instrument/configuration/smrtlink	Sets the SMRT Link host address
GET	instrument/diagnostic	Returns the diagnostics status
POST	instrument/diagnostic	Starts the diagnostics
POST	instrument/diagnostic/abort	Aborts a currently running diagnostic
POST	instrument/door/unlock	Unlocks the instrument door
GET	instrument/failedtransfers	Returns array of acquisition ids that failed transfer
POST	instrument/powercycle	Commands the instrument to power cycle
DELETE	instrument/powerdown	Commands the instrument to clear the request to power down
POST	instrument/powerdown	Commands the instrument to power down
POST	instrument/restart_ics	Commands the instrument software to restart
Continued on next page		

Table 2.1 – continued from previous page

Method	URI	Description
POST	instrument/retrytransfers	Resubmits acquisitions that failed transfer
GET	instrument/state	Returns the fundamental instrument state
GET	instrument/sysalarms	Returns the instrument's current system alarms
GET	instrument/transferresource	Returns the default transfer resource
POST	instrument/transferresource	Specifies the default transfer resource
GET	inventory	Returns the instrument's inventory
POST	inventory/n2checked	Signals instrument that nitrogen has been checked
POST	inventory/tipsloaded	Signals instrument that tips/plates have been loaded
POST	inventory/trashemptied	Signals instrument that trash has been emptied
GET	loggers	Returns list of loggers
POST	loggers	Creates a logger
GET	loggers/{lid}	Returns the logger for the given id
POST	loggers/{lid}	Logs a message at the provided log level
GET	loggers/{lid}/context	Gets the logger's context
PUT	loggers/{lid}/context	Sets the logger's context
Continued on next page		

Table 2.1 – continued from previous page

Method	URI	Description
GET	logs	Returns log messages for a given point of interest date
GET	metricrecorders	Returns list of metric recorders
POST	metricrecorders	Creates a metric recorder
GET	metricrecorders/{mid}	Returns the metric recorder for the given id
POST	metricrecorders/{mid}	Records a metric value
GET	metrics/alarms	Returns the alarms for a given time range
GET	metrics/chips	Returns the chips for a given time range
GET	metrics/events	Returns the events for a given time range, and an optional id
GET	metrics/indices	Returns the metric indices for a given time range and an optional id
GET	metrics/lifeevents	Returns the life events of instrument software for a given time range
GET	metrics/logmsgs	Returns the log messages for a given time range, and an optional minimum level
GET	metrics/movies	Returns the movies for a given time range
GET	metrics/runrefs	Returns list of (count) run references. Default is 10
Continued on next page		

Table 2.1 – continued from previous page

Method	URI	Description
GET	metrics/runs	Returns the runs for a given time range
GET	metrics/services	Returns the service events for a given time range
GET	metrics/trace	Returns a metric trace for a given id and time range, and an optional binning size
GET	metrics/uptimes	Returns the instrument uptime info (startups/shutdowns)
GET	metrics/values	Returns the metric values for a given id and time range
GET	notifications	Returns the settings for the notifications service
POST	notifications	Commits new settings for the notifications service
POST	notifications/test/email	Tests e-mail notifications
POST	notifications/test/slack	Tests Slack notifications
DELETE	run	Unloads the currently loaded run
GET	run	Returns the serialized run design for the currently loaded run
POST	run	Loads the provided run design

Continued on next page

Table 2.1 – continued from previous page

Method	URI	Description
GET	run/collstats	Returns the latest stats for the run's current collection
GET	run/data	Returns the run data for the currently-loaded run
GET	run/rqmts	Returns the latest determined run requirements for the currently-loaded run
POST	run/rqmts	Starts an inventory scan and check of run requirements for the currently-loaded run
POST	run/start	Starts the currentl- loaded run
POST	run/stop	Stops the current run
POST	run/template	Creates a run from the provided template
GET	runs	Returns the list of available run designs
GET	runs/{id}	Returns the run design for the provided id
POST	runs/{id}/load	Loads the run for the provided id on the instrument and returns the run data

Redirect request to resource - requests and responses examples

Example 1 - Get the instrument's run:

GET <http://SMRTLinkServername.domain:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/run>

Response:

```
{
  "createdAt" : null, "createdBy" : null,
  "dataModel" : "<?xml version='1.0' encoding='utf-8'?'><PacBioDataModel>...</PacBioDataModel>", "name" :
  "410_5151_All5mer_270pM_diffusion",
  "reserved" : false,
  "summary" :
  "All5Mers_V2_01_bc_01_circular_22x_150600",
  "totalCells" : 6,
  "uniqueId" : null
}
```

Note: The “dataModel” field contains a serialized Run Design XML file, which defines run design metadata according to the PacBioDataModel.xsd schema.

Example 2 - Get the instrument's run data:

GET <http://SMRTLinkServername.domain:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/run/data>

Response:

```
{
  "collections" : [{
    "dnaControlComplex" : null,
    "hasMagbead" : false,
    "hasSizeSelection" : false,
    "hasStageStart" : false,
    "insertSize" : 0,
    "movieMinutes" : 28.8,
    "exampleName" : "\"410_5152_All5mer_30pM_diffusion\"",
    "state" : 3,
    "summaryStats" : null,
    "well" : "A01"
  }],
  "completedAt" : null,
  "estimatedSecondsRemaining" : 2480,
  "name" : "410_5152_All5mer_30pM_diffusion",
  "startedAt" : "2016-02-29T22:26:28.577Z",
  "state" : 4,
  "timestamp" : "2016-02-29T22:30:39.450Z"
}
```

Example 3 - Get the instrument's configuration:

GET <http://SMRTLinkServername.domain:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/instrument/configuration>

Response:

```
{
  "automations" : [],
  "icsVersion" : "3.0.3.170900",
  "name" : "Sequel",
  "paVersion" : "3.0.16",
  "serialNumber" : "54002i",
  "smrtLinkHostAddress" : {
    "domain" : "http://smrtlink-beta",
    "port" : 8081
  },
  "smrtLinkVersion" : "0.50.6-SNAPSHOT"
}
```

Example 4 - Get the instrument's system alarms:

GET <http://SMRTLinkServername.domain:8081/smrt-link/registry-service/resources/f9772193-21b9-4250-bbc8-9630086a2ba8/proxy/instrument/sysalarms>

Response:

```
{
  "alarms" : [{
    "id" : 100004,
    "message" : "Deviations in ICS installation: \\.\\configuration\\automationconfig.xml", "name" : "Configuration",
    "response" :
    "NoUI", "severity"
    : "WARNING",
    "source" :
    "svc:\\i\\",
    "supplementalInfo"
    : null,
    "when" : "2017-02-01T23:25:11.707Z"
  }, {
    "id" : 110160,
    "message" : "Aurora detected 16 soft errors. (SupportMode\\
    true)", "name" : "SensorSoftError",
    "response" : null,
    "severity" :
    "CRITICAL",
    "source" :
    "svc:\\i\\detector\\sensorcontrol\\",
    "supplementalInfo" : null,
    "when" : "2017-02-02T00:41:07.560Z"
  }
],
  "timestamp" : "2017-02-02T00:41:07.990Z"
}
```

2.2.7 Update Resource

Update a resource object, identified by its server-provided UUID, with the new host and/or port values.

Note: Resource UUID values can be found in “uuid” fields of objects returned by the [List All Resources](#) request.

Request

Method	URL
POST	<a href="http://<host>:<port>/smrt-link/registry-service/resources/{uuid}/update">http://<host>:<port>/smrt-link/registry-service/resources/{uuid}/update

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
uuid	string	Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by the List All Resources request.	Yes	No	7afeb98b-b63b-4d27-9d51-0d40744b3bbd 1281c476-0e66-472f-971d-1268f18fc82e

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request	Yes	application/json
Accept	Content-Types that are acceptable for the response	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Update resource - request schema

Example Request

See [Update resource - request example](#)

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. The updated resource object will be returned in the response body.
400 Bad Request	Request entity expected but not supplied	Occurs when no request body was passed in the request. Note: passing an empty request body, i.e. {} only, is valid, but no request body is invalid.
400 Bad Request	The request content was incorrect: Expected Int as JsNumber, but got	Occurs when an invalid data type was passed for a field in the request body, for example: passed “port” : “8889” (string), when port value must be integer.
404 Not Found	Unable to find resource be0f98db-85ce-48b4-bae4-0c60404b7498	There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in “uuid” fields of objects returned by the List All Resources request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Unsupported Media Type	There was a problem with the request’s Content-Type: Expected ‘application/json’	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 26 Feb 2016 22:19:18 GMT
Content-Length	Length of the response body in octets	Yes	217
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Update resource - response schema

Example Response

See [Update resource - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	No changes from previous release.	N/A

Update resource - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrlink.schemas.resource.update",
  "version" : "0.1.0",
  "title" : "Resource Update",
  "description" : "A subset of Resource object intended for updating a resource",
  "type" : "object",
  "properties" : {
    "host" : {
      "title" : "Host",
      "description" : "Host name to be assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number to be assigned to this resource",
      "type" : "integer"
    }
  },
  "optional" : [
    "host",
    "port"
  ],
  "additionalProperties" : false
}
```

Update resource - request example

Update host and port values for the resource with UUID = 'be0f98db-85ce-48b4-bae4-0c60404b7498':

POST <http://SMRTLinkServername.domain:8081/smart-link/registry-service/resources/be0f98db-85ce-48b4-bae4-0c60404b7498/update>

```
{
  "host" : "icc-54032.nanofluidics.com",
  "port" : 8889
}
```

Note: The host and port values are both optional.

Update resource - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtlink.schemas.resource.object",
  "version" : "0.1.0",
  "title" : "Resource Object",
  "description" : "Resource object schema",
  "type" : "object",
  "properties" : {
    "resourceId" : {
      "title" : "Resource Id",
      "description" : "User-defined identifier of this resource",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Resource UUID",
      "description" : "Server-generated UUID of this resource",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "host" : {
      "title" : "Host",
      "description" : "Host name assigned to this resource",
      "type" : "string",
      "format" : "hostname"
    },
    "port" : {
      "title" : "Port",
      "description" : "Port number assigned to this resource",
      "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this resource was created",
      "type" : "string"
    }
  }
}
```



```

    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this resource was
updated", "type" : "string",
    "format" : "date-time"
  }
},
"required"
: [
  "resource
Id",
  "uuid",
  "host",
  "port",
  "createdAt",
  "updatedAt"
],
"additionalProperties" : false
}

```

Update resource - response example

```

{
  "resourceId" : "54032",
  "updatedAt" : "2016-02-26T14:19:18.061",
  "uuid" : "be0f98db-85ce-48b4-bae4-
0c60404b7498", "host" : "icc-
54032.nanofluidics.com",
  "port" : 8889,
}

```

Note: The “updatedAt” field in the updated resource object will be set to the current system time.

2.2.8 Delete Resource

Delete a resource object identified by its server-provided UUID.

Note: Valid UUID values can be found in “uuid” fields of objects returned by the [List All Resources](#) request.

Request

Method	URL
DELETE	<a href="http://<host>:<port>/smrt-link/registry-service/resources/{uuid}">http://<host>:<port>/smrt-link/registry-service/resources/{uuid}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
uuid	string	Server-provided UUID; valid UUID values can be found in “uuid” fields of objects returned by the List All Resources request.	Yes	No	7afeb98b-b63b-4d27-9d51-0d40744b3bbd 1281c476-0e66-472f-971d-1268f18fc82e

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is DELETE request.

Example Request

Delete the resource object with server-provided UUID = f76e5331-756c-4d2d-a5aa-8e27e24a5bb2:
DELETE <http://SMRTLlinkServername.domain:8081/smart-link/registry-service/resources/f76e5331-756c-4d2d-a5aa-8e27e24a5bb2>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find resource f76e5331-756c-4d2d-a5aa-8e27e24a5bb1	There are no resources corresponding to UUID value passed in the request. Note: Valid UUID values can be found in “uuid” fields of objects returned by the List All Resources request. Note: If DELETE request was sent twice for the same resource UUID, then the second time the response is 404 Not Found, as the object doesn't exist anymore.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Sat, 27 Feb 2016 01:23:38 GMT
Content-Length	Length of the response body in octets	Yes	86
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	Response schema is N/A, as this is DELETE request.

Example Response

See *Delete resource - response example*

Change Log

Release	Description of changes	Backward-compatible
SMRT Link v3.0	New service endpoint.	N/A
SMRT Link v4.0	Has response body in this release.	Yes

Delete resource - response example

```
{
  "message" : "Successfully deleted resource f76e5331-756c-4d2d-a5aa-8e27e24a5bb2"
}
```

Chapter 3 - SMRT® Analysis Service API

3.1 Dataset Service

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3.1.1 Overview of Dataset Service

Use Cases

The Dataset Service enables accessing datasets.

- The Dataset Service provides an API for retrieving lists of datasets of various types available on the system. This service also enables retrieving dataset details, reports, and datastore files for individual datasets.
- The Dataset Service does **not** provide an API for creating datasets, as datasets get created through the Jobs Service, where users may create new datasets using the import-dataset job type, or may create datasets from other datasets.
- The Dataset Service does **not** provide an API for updating datasets, as datasets are supposed to be immutable.

Key Concepts

Definition of a dataset depends on the exact data type being manipulated. For example, defining SubreadSet (a Dataset of subreads) would require the following information:

- The location of cells and optionally examples from cells (e.g. cells + barcode) to include in the dataset;
- Data metadata, such as example name, comments, owner, permissions.

Dataset Types

Dataset Types list:

- alignments
- barcodes
- contigs
- ccsalignments
- ccsreads
- hdfsubreads
- references
- subreads

- gmapreferences

Endpoint-to-User-Role Mapping: Dataset Service API

The following table defines which Dataset Service API endpoints can be accessed by each SMRT Link User Role:

Endpoint	User Roles
List All Dataset Types	Admin, Lab Tech, Bioinformatician
List All Datasets by Type	Admin, Lab Tech, Bioinformatician
Get Dataset Schema by Type	Admin, Lab Tech, Bioinformatician
Retrieve Dataset by Type and Id	Admin, Lab Tech, Bioinformatician
Retrieve Dataset Details by Type and Id	Admin, Lab Tech, Bioinformatician
Get Dataset Reports	Admin, Lab Tech, Bioinformatician
Download Datastore Files	Admin, Lab Tech, Bioinformatician

Note: For details on the user authentication mechanism and User Roles, see the *Authentication* section in the [Introduction](#) chapter.

3.1.2 List All Dataset Types

Get the list of all dataset types.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/dataset-types">http://<host>:<port>/secondary-analysis/dataset-types

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all dataset types:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/dataset-types>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Wed, 27 Jan 2016 23:01:45 GMT
Content-Length	Length of the response body in octets	Yes	2240
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all dataset types - response schema

Example Response

See [List all dataset types - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	<ul style="list-style-type: none"> Added new dataset type: "gmapreferences". No changes in response schema. 	Yes.

List all dataset types - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.types.list",
  "version" : "0.1.0",
  "title" : "Dataset Types List",
  "description" : "Array of objects describing Dataset Types",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Dataset Type Display Name",
        "description" : "Display name of this dataset type",
        "type" : "string"
      },
      "updatedAt" : {
        "title" : "Updated at",
        "description" : "Time when this dataset type was updated",
        "type" : "string",
        "format" : "date-time"
      },
      "description" : {
        "title" : "Dataset Type Description",
        "description" : "Description of this dataset type",
        "type" : "string"
      },
      "id" : {
        "title" : "Dataset Type Id",
        "description" : "Identifier of this dataset type",
        "type" : "string"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this dataset type was created",
        "type" : "string",
        "format" : "date-time"
      },
      "shortName" : {
        "title" : "Dataset Type Short Name",
        "description" : "Short name of this dataset type",
        "type" : "string"
      }
    }
  },
  "required" : [
    "name",
    "updatedAt",
    "description",
    "id",
    "createdAt",
    "shortName"
  ],
  "additionalItems" : false
}

```

List all dataset types - response example

```
[{
  "name" : "Display name for PacBio.DataSet.ReferenceSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.ReferenceSet",
  "id" : "PacBio.DataSet.ReferenceSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "references"
}, {
  "name" : "Display name for PacBio.DataSet.SubreadSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.SubreadSet",
  "id" : "PacBio.DataSet.SubreadSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "subreads"
}, {
  "name" : "Display name for PacBio.DataSet.ContigSet",
  "updatedAt" : "2016-01-04T23:23:07.823Z",
  "description" : "Description for PacBio.DataSet.ContigSet",
  "id" : "PacBio.DataSet.ContigSet",
  "createdAt" : "2016-01-04T23:23:07.823Z",
  "shortName" : "contigs"
}, {
  "name" : "Display name for PacBio.DataSet.AlignmentSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.AlignmentSet",
  "id" : "PacBio.DataSet.AlignmentSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "alignments"
}, {
  "name" : "Display name for PacBio.DataSet.ConsensusReadSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.ConsensusReadSet",
  "id" : "PacBio.DataSet.ConsensusReadSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "ccsreads"
}, {
  "name" : "Display name for PacBio.DataSet.HdfSubreadSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.HdfSubreadSet",
  "id" : "PacBio.DataSet.HdfSubreadSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "hdfsubreads"
}, {
  "name" : "Display name for PacBio.DataSet.BarcodeSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.BarcodeSet",
  "id" : "PacBio.DataSet.BarcodeSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "barcodes"
}, {
  "name" : "Display name for PacBio.DataSet.ConsensusAlignmentSet",
  "updatedAt" : "2016-01-04T23:23:07.824Z",
  "description" : "Description for PacBio.DataSet.ConsensusAlignmentSet",
  "id" : "PacBio.DataSet.ConsensusAlignmentSet",
  "createdAt" : "2016-01-04T23:23:07.824Z",
  "shortName" : "ccsalignments"
}
```



```

}, {
  "name" : "Display name for PacBio.DataSet.GmapReferenceSet",
  "updatedAt" : "2016-07-22T14:26:42.029Z",
  "description" : "Description for PacBio.DataSet.GmapReferenceSet",
  "id" : "PacBio.DataSet.GmapReferenceSet",
  "createdAt" : "2016-07-22T14:26:42.029Z",
  "shortName" : "gmapreferences"
}
]

```

3.1.3 List All Datasets by Type

Get the list of all dataset objects of a specific type available on the system.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}">http://<host>:<port>/secondary-analysis/datasets/{shortName}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from the "shortName" fields of the Dataset Type objects.	Yes	No	alignments barcodes contigs ccsalignments ccsreads hdfsubreads references subreads gmapreferences

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all datasets of type 'alignments' available on the system:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/alignments>

Get the list of all datasets of type 'hdfsubreads' available on the system:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/hdfsubreads>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there are no datasets corresponding to dataset type specified in {shortName}, then the response still will be 200 OK, with an empty datasets array in the response body.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: to get the list of valid shortName values, use the List All Dataset Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 26 Jan 2016 19:26:28 GMT
Content-Length	Length of the response body in octets	Yes	784856
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all datasets by type - response schema

Example Response

See [List all datasets by type - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	<ul style="list-style-type: none"> Changed response and response schema: added "datasetType" field. Added new dataset type: "gmapreferences". 	No

List all datasets by type - response schema

Generic definition: Schema for the list of all dataset objects of 'shortName' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.<shortName>.list",
  "version" : "0.1.0",
  "title" : "Datasets List",
  "description" : "Array of Dataset objects of specific type",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.<shortName>"
  },
  "additionalItems" : false
}
```

Note: Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.<shortName>") may be obtained through the [Get Dataset Schema By Type](#) request.

Example 1: Schema for the list of all dataset objects of 'alignments' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.alignments.list",
  "version" : "0.1.0",
  "title" : "Alignments Datasets List",
  "description" : "Array of Dataset objects of type alignments",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.alignments"
  },
  "additionalItems" : false
}
```

Note: Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.alignments") may be obtained through the [Get Dataset Schema By Type](#) request.

Example 2: Schema for the list of all dataset objects of 'hdfsubreads' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.hdfsubreads.list",
  "version" : "0.1.0",
  "title" : "Hdfsubreads Datasets List",
  "description" : "Array of Dataset objects of type hdfsubreads",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "pacbio.secondary.schemas.datasets.hdfsubreads"
  },
  "additionalItems" : false
}
```

Note: Schema definition of the datasets array's element ("pacbio.secondary.schemas.datasets.hdfsubreads") may be obtained through the [Get Dataset Schema By Type](#) request.

List all datasets by type - response example

Example 1 - get the list of all datasets of type 'alignments':

```
[{
  "name" : "",
  "updatedAt" : "2015-11-13T11:58:38.164",
  "path" : "/pbi/jobs/03/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
  "tags" : "",
  "uuid" : "1ec874f7-3295-8969-0db1-e482382aba98",
  "totalLength" : 13760292,
  "projectId" : 1,
  "numRecords" : 17871,
  "version" : "3.0.1",
  "id" : 4,
  "md5" : "66f9ed362e2bafb92e880d24c4435015", "jobId" : 3,
  "createdAt" : "2015-11-13T11:58:38.164",
  "userId" : 1,
  "datasetType" : "PacBio.DataSet.AlignmentSet",
  "comments" : "alignment dataset converted"
}, {
  "name" : "",
  "updatedAt" : "2015-11-13T12:02:49.670",
  "path" : "/pbi/jobs/06/tasks/pbalign.tasks consolidate_bam-0/final.alignmentset.xml", "tags" : "",
  "uuid" : "fdbde359-abc-b-d203-f319-8002e0db4119",
  "totalLength" : 13757327,
  "projectId" : 1,
  "numRecords" : 17869,
  "version" : "3.0.1",
  "id" : 7,
  "md5" : "c405d75ed70c7bcc5c6c896b7e48c111", "jobId" : 6,
```

```

    "createdAt" : "2015-11-13T12:02:49.670",
    "userId" : 1,
    "datasetType" : "PacBio.DataSet.AlignmentSet",
    "comments" : "alignment dataset converted"
  }
]

```

Example 2 - get the list of all datasets of type 'hdfsubreads':

```

[ {
  "name" : "Convert-movie",
  "updatedAt" : "2015-11-20T10:23:16.916",
  "path" :
    "/dataset/m150417_054245_42142_c1007614325501823161607221560_s1_p0.hdfsubreadset.xml", "tags"
    : "pacbio.secondary.instrument=RS",
  "instrumentName" : "42142",
  "uuid" : "d2f0ef10-1040-4839-b94b-
c8b068edffb2", "totalLength" : 50000000,
  "projectId" : 1,
  "numRecords" : 150000,
  "wellExampleName" : "Hummingbird 17kb cut_125
pM", "bioExampleName" : "Hummingbird 17kb
cut_125 pM", "version" : "3.0.1",
  "id" : 133,
  "md5" : "9145450a4ed8fc74bfaafa5285d98aa4",
  "jobId" : 94,
  "createdAt" : "2015-11-20T10:23:16.916",
  "wellName" : "G01",
  "cellIndex" : 0,
  "userId" : 1,
  "metadataContextId" :
    "m150417_054245_42142_c1007614325501823161607221560_s1_p0", "runName" : "2015-
04-14_42142_1131_Hummingbird_17kb_plate",
  "datasetType" : "PacBio.DataSet.HdfSubreadSet",
  "comments" : ""
}, {
  "name" : "Convert-movie",
  "updatedAt" : "2015-11-20T10:24:52.188",
  "path" :
    "/dataset/m150407_133846_sherri_c1007120825501823142104221563_s1_p0.hdfsubreadset.xml",
  "tags" : "pacbio.secondary.instrument=RS",
  "instrumentName" : "sherri",
  "uuid" : "fbb872ed-4e2a-43e9-bce0-
767e31861604", "totalLength" : 50000000,
  "projectId" : 1,
  "numRecords" : 150000,
  "wellExampleName" : "Hummingbird 17kb cut_100
pM", "bioExampleName" : "Hummingbird 17kb
cut_100 pM", "version" : "3.0.1",
  "id" : 136,
  "md5" : "d08f6daa93804fe7339c4478ee02973f",
  "jobId" : 97,

  "createdAt" : "2015-11-20T10:24:52.188",
  "wellName" : "D01",
  "cellIndex" : 3,
  "userId" : 1,
  "metadataContextId" :
    "m150407_133846_sherri_c1007120825501823142104221563_s1_p0", "runName" : "2015-
04-06_sherri_1114_Barcoded_Library_6ple",
  "datasetType" : "PacBio.DataSet.HdfSubreadSet",

```

```

    "comments" : ""
  }
]

```

3.1.4 Get Dataset Schema by Type

Get schema definition of a specific dataset type.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}/_schema">http://<host>:<port>/secondary-analysis/datasets/{shortName}/_schema

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from "shortName" fields of Dataset Type objects.	Yes	No	alignments barcodes contigs ccsalignments ccsreads hdfsubreads references subreads gmapreferences

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the	Yes	text/plain

Media Type	Request Body Representation / Schema
text/plain	Request schema is N/A, as this is GET request.

Example Request

Get schema definition of type 'alignments':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/alignments/_schema

Get schema definition of type 'barcodes':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/barcodes/_schema

Get schema definition of type 'contigs':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/contigs/_schema

Get schema definition of type 'ccsalignments':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/ccsalignments/_schema

Get schema definition of type 'ccsreads':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/ccsreads/_schema

Get schema definition of type 'hdfsubreads':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/hdfsubreads/_schema

Get schema definition of type 'references':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/references/_schema

Get schema definition of type 'subreads':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/_schema

Get schema definition of type 'gmapreferences':

GET http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/gmapreferences/_schema

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: to get the list of valid shortName values, use the List All Dataset Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: text/plain; charset=UTF-8 text/plain	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 02 Feb 2017 02:32:39 GMT
Content-Length	Length of the response body in octets	Yes	5188
Content-Type	MIME type of this content	Yes	text/plain; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
text/plain	The response is JSON schema of a specific dataset type; see Get dataset schema by type - response example for examples.

Example Response

See [Get dataset schema by type - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A

SMRT Analysis v4.0	<ul style="list-style-type: none"> • application/json -> text/plain in Accept request header. • Added new dataset type: "gmapreferences". 	No
--------------------	--	----

Get dataset schema by type - response example

Example 1 - dataset schema of type 'alignments':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.alignments",
  "version" : "1.0.0",
  "title" : "Alignment",
  "description" : "Alignment DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Alignment DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "name" : {
      "title" : "Alignment DataSet Name",
      "description" : "Display name of this Alignment DataSet",
      "type" : "string",
      "minLength" : 1
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Dataset type, e.g. PacBio.DataSet.AlignmentSet",
      "type" : "string",
      "minLength" : 1
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created",
      "type" : "string",
      "format" : "date-time"
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet XML",
      "type" : "string",
      "format" : "sem-ver",
      "minLength" : 5
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of alignments in this DataSet",
      "type" : "integer",
      "minimum" : 0
    }
  },
}
```



```

"totalLength" : {
  "title" : "Total length",
  "description" : "Total length of alignments (in aligned query bp) in this DataSet",
  "type" : "integer",
  "minimum" : 0
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation.",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"parentReferenceId" : {
  "title" : "Parent Reference Id",
  "description" : "UUID for the Reference DataSet for the alignments",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to alignment DataSet XML",
  "type" : "string",
  "format" : "uri"
},
"description" : {
  "title" : "Comments",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time"
},
"modifiedAt" : {
  "title" : "Updated at",
  "description" : "Time when DataSet metadata was last updated",
  "type" : "string",
  "format" : "date-time"
},
"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string",
  "enum" : ["New", "Pending", "Complete", "Error"]
},
"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5",
  "pattern" : "^[a-fA-F0-9]{32}$"
},
"parentAnalysisJobId" : {
  "title" : "Parent Job Id",

```

```

    "description" : "Id of job that generated this DataSet",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string",
    "minLength" : 1
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",
  "parentReferenceId",
  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}

```

Example 2 - dataset schema of type 'barcodes':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.barcodes",
  "version" : "1.0.0",
  "title" : "Barcode",
  "description" : "Barcode DataSet Schema", "type" : "object",
  "properties" : { "id" : {
    "title" : "UUID",
    "description" : "UUID of the DataSet XML", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
    "name" : {
      "title" : "Barcode DataSet Name",
      "description" : "Name of this Barcode DataSet", "type" : "string",
      "minLength" : 1
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Dataset type, e.g. PacBio.DataSet.BarcodeSet", "type" : "string",
      "minLength" : 1
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created", "type" : "string",
      "format" : "date-time"
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet XML", "type" : "string",
      "format" : "sem-ver", "minLength" : 5
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of barcodes in this DataSet", "type" : "integer"
    },
    "totalLength" : {
      "title" : "Total length",
      "description" : "Total length of Barcodes (in bp) in this DataSet", "type" : "integer",
      "minimum" : 0
    },
    "tags" : {
      "title" : "DataSet tags",
      "description" : "Tags assigned to the DataSet upon creation.", "type" : "array",
      "items" : {
        "type" : "string"
      },
      "uniqueItems" : true
    },
    "barcodeConstruction" : {
      "title" : "Barcode construction",
      "description" : "of barcode (paired, unpaired).", "type" :
        "string",
      "enum" : ["paired", "unpaired"]
    }
  },
  "path" : {
    "title" : "DataSet path",

```

```
"description" : "Path to Barcode DataSet XML", "type" :
"string",
"format" : "uri"
},
"description" : { "title" :
"Comments",
"description" : "User description and comments", "type" :
"string"
},
"importedAt" : {
"title" : "Imported at",
"description" : "Time when DataSet was imported", "type" :
"string",
"format" : "date-time"
},
"modifiedAt" : {
"title" : "Updated at",
"description" : "Time when DataSet metadata was last updated", "type" :
"string",
"format" : "date-time"
},
"status" : {
"title" : "DataSet Status",
"description" : "Status of DataSet (New, Pending, Complete, Error)", "type" :
"string",
"enum" : ["New", "Pending", "Complete", "Error"]
},
"md5" : {
"title" : "md5",
"description" : "md5 checksum of the Dataset XML file", "type" :
"string",
"format" : "md5",
"pattern" : "^[a-fA-F0-9]{32}$"
},
"parentAnalysisJobId" : { "title" :
"Parent Job Id",
"description" : "Id of job that generated this DataSet", "type" :
"integer",
"minimum" : 0
},
"userId" : {
"title" : "User Id",
"description" : "User Id that imported the DataSet", "type" :
"string",
"minLength" : 1
},
"smrtanalysisInstallId" : {
"title" : "SMRT Analysis Install Id",
"description" : "SMRT Analysis Install that the DataSet belongs to", "type" :
"string",
"format" : "uuid",
"pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"projectId" : {
"title" : "Project Id",
"description" : "Project that the DataSet belongs to",
"type" : "string",
"format" : "uuid",
"pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"serviceTags" : {
```

```

    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "required" : [
    "id",
    "name",
    "datasetType",
    "createdAt",
    "version",
    "numRecords",
    "totalLength",
    "tags",
    "barcodeConstruction",
    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 3 - dataset schema of type 'contigs':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.contigs",
  "version" : "0.1.0",
  "title" : "Contig DataSet Schema",
  "description" : "Contig DataSet Schema",
  "type" : "object",
  "properties" : {

```

```

"id" : {
  "title" : "DataSet id",
  "description" : "UUID of the DataSet XML",
  "type" : "string",
  "format" : "uuid"
},
"name" : {
  "title" : "Contig DataSet Name",
  "description" : "Name of this Contig DataSet",
  "type" : "string"
},
"datasetType" : {
  "title" : "Dataset Type",
  "description" : "Dataset type, e.g. PacBio.DataSet.ContigSet",
  "type" : "string",
  "minLength" : 1
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when the DataSet XML was created",
  "type" : "string",
  "format" : "date-time"
},
"version" : {
  "title" : "Version",
  "description" : "Version of this DataSet XML",
  "type" : "string"
},
"numRecords" : {
  "title" : "Num records",
  "description" : "Number of contigs in this DataSet",
  "type" : "integer"
},
"totalLength" : {
  "title" : "Total length",
  "description" : "Total length of contigs in bp in this DataSet",
  "type" : "integer"
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation.",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Contig DataSet XML",
  "type" : "string"
},
"description" : {
  "title" : "Comments",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",

```

```

    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string"
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer"
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string"
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",

```

```

    "numRecords",
    "totalLength",
    "tags",
    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 4 - dataset schema of type 'ccsalignments':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.datasets.alignments",
  "version" : "0.1.0",
  "title" : "CCS Alignment DataSet Schema",
  "description" : "CCS Alignment DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "DataSet id",
      "description" : "UUID of the DataSet XML",
      "type" : "string",
      "format" : "uuid"
    },
    "name" : {
      "title" : "CCS Alignment DataSet Name",
      "description" : "Display name of this CCS Alignment DataSet",
      "type" : "string"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Dataset type, e.g. PacBio.DataSet.ConsensusAlignmentSet",
      "type" : "string",
      "minLength" : 1
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was created",
      "type" : "string",
      "format" : "date-time"
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this DataSet XML",
      "type" : "string"
    },
    "numRecords" : {
      "title" : "Num records",
      "description" : "Number of alignments in this DataSet",
      "type" : "integer"
    }
  }
}

```



```

},
"totalLength" : {
  "title" : "Total length",
  "description" : "Total length of alignments (in aligned query bp) in this
  DataSet", "type" : "integer"
},
"tags" : {
  "title" : "DataSet tags",
  "description" : "Tags assigned to the DataSet upon creation.",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"parentReferenceId" : {
  "title" : "Parent Reference Id",
  "description" : "UUID for the Reference DataSet for the alignments",
  "type" : "string"
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to alignment DataSet XML",
  "type" : "string"
},
"description" : {
  "title" :
  "Comments",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time"
},
"modifiedAt" : {
  "title" : "Updated at",
  "description" : "Time when DataSet metadata was last updated",
  "type" : "string",
  "format" : "date-time"
},
"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string"
},
"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5"
},
"parentAnalysisJobId" : {
  "title" : "Parent Job Id",
  "description" : "Id of job that generated this DataSet",
  "type" : "integer"
},
"userId" : {

```

```

    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string"
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",
  "parentReferenceId",
  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}

```

Example 5 - dataset schema of type 'ccsreads':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.ccsreads",
  "version" : "0.1.0",
  "title" : "CCS Reads DataSet Schema",
  "description" : "CCS Reads DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "DataSet id",

```

```

    "description" : "UUID of the DataSet XML",
    "type" : "string",
    "format" : "uuid"
  },
  "name" : {
    "title" : "CCS Read DataSet Name",
    "description" : "Name of this CCS Read DataSet",
    "type" : "string"
  },
  "datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g. PacBio.DataSet.ConsensusReadSet",
    "type" : "string",
    "minLength" : 1
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created",
    "type" : "string",
    "format" : "date-time"
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet",
    "type" : "string"
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of CCS reads in this DataSet",
    "type" : "integer"
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length in bp of CCS reads in this DataSet",
    "type" : "integer"
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "cellPacBarcodes" : {
    "title" : "Cell Pac Barcodes",
    "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)", "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : { "title" : "Contexts",
    "description" : "Collection metadata contexts (aka Movie Names)", "type" :
    "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },

```

```

"wellNames" : {
  "title" : "Well Names",
  "description" : "Well names of the examples sequenced", "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"wellExampleNames" : {
  "title" : "Well Example Names", "description" : "Well example names", "type" :
  "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"bioExampleNames" : {
  "title" : "Biological Example Name",

  "description" : "Names from biological example(s)", "type" : "array",
  "items" : {

    "type" : "string"
  },
  "uniqueItems" : true
},
"plateIds" : {
  "title" : "Plate Ids", "description" : "Example plate ids", "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"instrumentIds" : {
  "title" : "Instrument ids",
  "description" : "Instrument ids (assigned by Instrument Control)", "type" :
  "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"instrumentNames" : {
  "title" : "Instrument Names",
  "description" : "Customer assigned instrument name(s)",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"runIds" : {
  "title" : "Run id",
  "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
  "type" : "array",
  "items" : {
    "type" : "string"
  },
  "uniqueItems" : true
},
"runNames" : {

```

```

    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"automationNames" : {
    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" :
        "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"primaryVersions" : {
    "title" : "Primary Version",
    "description" : "Primary Version",
    "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"primaryAutomationNames" : {
    "title" : "Primary Automation Names",
    "description" : "Automation Primary Protocols",
    "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"path" : {
    "title" : "DataSet path",
    "description" : "Path to CCS reads DataSet XML",
    "type" : "string"
},
"description" : {
    "title" : "Description",
    "description" : "User description and comments",
    "type" : "string"
},
"importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",

```

```

    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified",
    "type" : "string",
    "format" : "date-time"
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string"
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file",
    "type" : "string",
    "format" : "md5"
  },
  "parentAnalysisJobId" : {
    "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet",
    "type" : "integer"
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet",
    "type" : "string"
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet belongs to",
    "type" : "string"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to",
    "type" : "string"
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",
  "cellPacBarcodes",

```

```

    "collectionMetadataContexts"
    , "wellNames",
    "wellExampleNames",
    "bioExampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames",
    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId"
    , "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 6 - dataset schema of type 'hdfsubreads':

```

{
  "$schema" :
  "http://json-
  schema.org/draft-
  04/schema#", "id" :
  "pacbio.secondary.schem
  as.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" :
  "Subread DataSet

  Schema", "type" :
  "object",
  "properties" : { "id" :
  {
    "title" : "UUID",
    "description" : "UUID
    of the Subread DataSet
    XML", "type" :
    "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-
    9]{8}-[a-fA-F0-9]{4}-
    [a-fA-F0-9]{4}-[a-fA-
    F0-9]{4}-[a-fA-F0-
    9]{12}$",
    "readOnly" : true
  },
  "name" : {
    "title" : "Subread

```

```

DataSet Name",
"description" : "Name
of this Subread
DataSet", "type" :
"string",
"minLength" : 1,
"readOnly" : true
},
"datasetType" : {
"title" : "Dataset
Type",
"description" :
"Dataset type, e.g.
PacBio.DataSet.SubreadS
et", "type" : "string",
"minLength" : 1
},
"createdAt" : {
"title" : "Created at",
"description" : "Time
when the DataSet XML
was created", "type" :
"string",
"format" : "date-time",
"readOnly" : true
},
"version" : {
"title" : "Version",
"description" :
"Version of this
DataSet", "type" :
"string",
"format" : "sem-ver",
"minLength" : 5,
"readOnly" : true
},
"numRecords" : {
"title" : "Num
records",
"description" : "Number
of subreads in this
DataSet", "type" :
"integer",
"minimum" : 0,
"readOnly" : true
},
"totalLength" : {
"title" : "Total
length",
"description" : "Total
length (in bp) of
Subreads in this
DataSet", "type" :
"integer",
"minimum" : 0,
"readOnly" : true
},
"tags" : {
"title" : "DataSet tags",
"description" : "Tags assigned to the DataSet upon creation",
"type" : "array",
"items" : {

```



```

    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"cellPacBarcodes" : {
  "title" : "Cell Pac Barcodes",
  "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[0-9]{32}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"collectionMetadataContexts" : {
  "title" : "Contexts",
  "description" : "Collection metadata contexts",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[mcsp_0-9]{61}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellNames" : {
  "title" : "Well Names",
  "description" : "Well names of the examples sequenced",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[A-H][0-1][0-9]$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellExampleNames" : {
  "title" : "Well Example Names",
  "description" : "Well example name(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"bioExampleNames" : {
  "title" : "Biological Example Name",
  "description" : "Names from biological example(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"plateIds" : {
  "title" : "Plate Ids",

```

```

    "description" : "Example plate
ids", "type" : "array",
    "items" : {
        "type" : "string",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"instrumentIds" : {
    "title" : "Instrument ids",
    "description" : "Instrument ids (assigned by Instrument Control)",
    "type" : "array",

    "items" : {
        "type" : "string",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"instrumentNames" : {
    "title" : "Instrument Names",
    "description" : "Customer assigned instrument name(s)",
    "type" : "array",
    "items" : {
        "type" : "string",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"runIds" : {
    "title" : "Run id",
    "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
    "type" : "array",
    "items" : {
        "type" : "string",
        "format" : "uuid",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"runNames" : {
    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
        "type" : "string",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" : "array",
    "items" : {
        "type" : "string",
        "readOnly" : true
    },
    "uniqueItems" : true
},
"automationNames" : {

```

```

    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryVersions" : {
    "title" : "Primary Version",
    "description" : "Primary Version",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryAutomationNames" : {
    "title" : "Primary Automation Names",
    "description" : "Automation Primary Protocols",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Subreads DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Description",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",

```

```

    "enum" : [ "New", "Pending", "Complete",
    "Error"], "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML
    file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-
    9]{32}$", "readOnly" :
    true
  },
  "parentAnalysisJobI
  d" : { "title" :
    "Parent Job Id",
    "description" : "Id of job that generated this
    DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the
    DataSet", "type" : "string",

    "minLength" :
    1, "readOnly"
    : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet
    belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
    F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet
    belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
    F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services
    level", "type" : "array",
    "items" : {
      "type" : "string"
    }
  },

```

```

        "uniqueItems" : true
    }
},
"required" : [
    "id",
    "name",
    "datasetType",
    "createdAt",
    "version",
    "numRecords",
    "totalLength",
    "tags",
    "cellPacBarcodes",
    "collectionMetadataContexts",
    "wellNames",
    "wellExampleNames",
    "bioExampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames",
    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
],
}

```

Example 7 - dataset schema of type 'references':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.references",
  "version" : "1.0.0",
  "title" : "Reference",
  "description" : "Reference DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Reference DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {

```

```

    "title" : "Reference DataSet Name",

    "description" : "Name of this Reference
DataSet", "type" : "string",
    "minLength" :
    1, "readOnly"
    : true
},
"datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g.
PacBio.DataSet.ReferenceSet", "type" : "string",
    "minLength" : 1
},
"createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was
created", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :
    true
},
"version" : {
    "title" : "Version",
    "description" : "Version of this
DataSet XML", "type" : "string",
    "format" :
    "sem-ver",
    "minLength" :
    5, "readOnly"
    : true
},
"numRecords" : {
    "title" : "Num records",
    "description" : "Number of references in this
DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
},
"totalLength" : {
    "title" : "Total length",
    "description" : "Total length of references (in bp) in this
DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
},
"tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon
creation.", "type" : "array",
    "items" : {
        "type" :
        "string",

        "readOnly"
        : true
    },
    "uniqueItems" : true
},

```

```

"organism" : {
  "title" : "Organism",
  "description" : "Scientific name of the organism for this reference",
  "type" : "string",
  "readOnly" : true
},
"ploidy" : {
  "title" : "Ploidy",
  "description" : "Ploidy (1 if unknown) of this reference",
  "type" :
    "integer",
    "enum" : [0, 1, 2],
    "readOnly" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Reference DataSet XML",
  "type" : "string",
  "format" : "uri",
  "readOnly" : true
},
"description" : {
  "title" : "Comments",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"modifiedAt" : {
  "title" : "Updated at",
  "description" : "Time when DataSet metadata was last updated",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"status" : {
  "title" : "DataSet Status",
  "description" : "Status of DataSet (New, Pending, Complete, Error)",
  "type" : "string",
  "enum" : ["New", "Pending", "Complete", "Error"],
  "readOnly" : true
},
"md5" : {
  "title" : "md5",
  "description" : "md5 checksum of the Dataset XML file",
  "type" : "string",
  "format" : "md5",
  "pattern" : "^[a-zA-F0-9]{32}$",
  "readOnly" : true
},
"parentAnalysisJobId" : {
  "title" : "Parent Job Id",
  "description" : "Id of job that generated this DataSet",
  "type" : "integer",

```

```

    "minimum" : 0,
    "readOnly" : true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet", "type" : "string",
    "minLength" : 1, "readOnly" : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Installation Id",
    "description" : "Installation that the DataSet belongs to", "type" : "string",

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level", "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "required" : [
    "id",
    "name",
    "datasetType", "createdAt", "version", "numRecords", "totalLength", "tags",
    "organism", "ploidy",
    "path", "description", "importedAt", "modifiedAt", "status",
    "md5", "parentAnalysisJobId", "userId", "smrtanalysisInstallId", "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 8 - dataset schema of type 'subreads':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#", "id" :
  "pacbio.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema", "type" : "object",
  "properties" : {
    "id" : {

```



```

    "title" : "UUID",
    "description" : "UUID of the Subread
DataSet XML", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
},
"name" : {
    "title" : "Subread DataSet Name",
    "description" : "Name of this Subread
DataSet", "type" : "string",
    "minLength" :
1, "readOnly"
: true
},
"datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g.
PacBio.DataSet.SubreadSet", "type" : "string",
    "minLength" : 1
},
"createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was
created", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :
true
},
"version" : {
    "title" : "Version",
    "description" : "Version of this
DataSet", "type" : "string",
    "format" :
    "sem-ver",
    "minLength" :
5, "readOnly"
: true
},
"numRecords" : {
    "title" : "Num records",
    "description" : "Number of subreads in this
DataSet", "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
},
"totalLength" : {
    "title" : "Total length",
    "description" : "Total length (in bp) of Subreads in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
},
"tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation",
    "type" : "array",
    "items" : {

```

```

    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"cellPacBarcodes" : {
  "title" : "Cell Pac Barcodes",
  "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[0-9]{32}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"collectionMetadataContexts" : {
  "title" : "Contexts",
  "description" : "Collection metadata contexts",
  "type" :

  "array",
  "items" : {
    "type" : "string",
    "pattern" : "^[mcsp_0-9]{61}$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellNames" : {
  "title" : "Well Names",
  "description" : "Well names of the examples sequenced",
  "type" : "array",
  "items" : {

    "type" : "string",
    "pattern" : "^[A-H][0-1][0-9]$",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"wellExampleNames" : {
  "title" : "Well Example Names",
  "description" : "Well example name(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"bioExampleNames" : {
  "title" : "Biological Example Name",
  "description" : "Names from biological example(s)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
},

```

```

"plateIds" : {
  "title" : "Plate Ids",
  "description" : "Example plate
ids", "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentIds" : {
  "title" : "Instrument ids",
  "description" : "Instrument ids (assigned by Instrument Control)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentNames" : {
  "title" : "Instrument Names",
  "description" : "Customer assigned instrument name(s)",
  "type" :
    "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"runIds" : {
  "title" : "Run id",
  "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
  "type" : "array",
  "items" : {
    "type" : "string",
    "format" : "uuid",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"runNames" : {
  "title" : "Run Name",
  "description" : "Pacbio Run Name. RunDetails/Name",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"instrumentControlVersions" : {
  "title" : "Instrument Control Versions",
  "description" : "Version of the instrument control software",
  "type" : "array",
  "items" : {
    "type" : "string",

```

```

    "readOnly" : true
  },
  "uniqueItems" : true
},
"automationNames" : {
  "title" : "Collection protocol",
  "description" : "Instrument automation protocol names (aka Collection Protocols)",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryVersions" : {
  "title" : "Primary Version",
  "description" : "Primary Version",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"primaryAutomationNames" : {
  "title" : "Primary Automation Names",
  "description" : "Automation Primary Protocols",
  "type" : "array",
  "items" : {
    "type" : "string",
    "readOnly" : true
  },
  "uniqueItems" : true
},
"path" : {
  "title" : "DataSet path",
  "description" : "Path to Subreads DataSet XML",
  "type" : "string",
  "format" : "uri",
  "readOnly" : true
},
"description" : {
  "title" : "Description",
  "description" : "User description and comments",
  "type" : "string"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when DataSet was imported",
  "type" : "string",
  "format" : "date-time",
  "readOnly" : true
},
"modifiedAt" : {
  "title" : "Modified at",

```

```

    "description" : "Time when DataSet metadata was last
modified", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :
    true
},
"status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending,
Complete, Error)", "type" : "string",
    "enum" : ["New", "Pending", "Complete",
    "Error"], "readOnly" : true
},
"md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML
file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-
9]{32}$", "readOnly" :
    true
},
"parentAnalysisJobI
d" : { "title" :
    "Parent Job Id",
    "description" : "Id of job that generated this
DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
},
"userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the
DataSet", "type" : "string",

    "minLength" :
    1, "readOnly"
    : true
},
"smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet
belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
},
"projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet
belongs to", "type" : "string",
    "format" : "uuid",

    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
},
"serviceTags" : {
    "title" : "User defined tags",

```

```

    "description" : "Tags defined and set at the services
    level", "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
}
},
"required" : [
    "id",
    "name",
    "data",
    "datasetType",
    "createDate",
    "version",
    "numRecords",
    "totalLength",
    "tags",
    "cellPackageBarcodes",
    "collectionMetadataContexts",
    "wellNames",
    "wellExampleNames",
    "bioExampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames", "path",
    "description",
    "importedAt",
    "modifiedAt",

    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",

```

```

    "smrtanalysisI
    nstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Example 9 - dataset schema of type 'gmapreferences':

```

{
  "$schema" : "http://json-schema.org/draft-
  04/schema#", "id" :
  "pacbio.secondary.schemas.datasets.gmapreferenc
  es", "version" : "1.0.0",
  "title" : "GMAP Reference",
  "description" : "GMAP Reference DataSet
  Schema",

  "type" : "object",
  "properties" : {

    "id" :
    {
      "title" : "UUID",
      "description" : "UUID of the GMAP Reference
      DataSet XML", "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
      F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "GMAP Reference DataSet Name",
      "description" : "Name of this GMAP Reference
      DataSet", "type" : "string",
      "minLength" :
      1, "readOnly"
      : true
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Dataset type, e.g.
      PacBio.DataSet.GmapReferenceSet", "type" : "string",
      "minLength" : 1
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when the DataSet XML was
      created", "type" : "string",
      "format" :
      "date-time",
      "readOnly" :
      true
    },
    "version" : {
      "title" : "Version",
      "description" : "Version of this
      DataSet XML", "type" : "string",
      "format" :

```

```

    "sem-

    ver",
    "minLength" :
    5, "readOnly"
    : true
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of references in this
    DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length of references (in bp) in this
    DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "organism" : {
    "title" : "Organism",
    "description" : "Scientific name of the organism for this reference",
    "type" : "string",
    "readOnly" : true
  },
  "ploidy" : {
    "title" : "Ploidy",
    "description" : "Ploidy (1 if unknown) of this reference",
    "type" : "integer",
    "enum" : [0, 1, 2],
    "readOnly" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to GMAP Reference DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Comments",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {

```



```

    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last updated",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"],
    "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML
file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-
9]{32}$", "readOnly" :
    true
  },
  "parentAnalysisJobI
d" : { "title" :
    "Parent Job Id",
    "description" : "Id of job that generated this
DataSet", "type" : "integer",
    "minimum" :
    0,

    "readOnly" :
    true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the
DataSet", "type" : "string",
    "minLength" :
    1, "readOnly"
    : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Installation Id",
    "description" : "Installation that the DataSet belongs
to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet

```

```

    belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",
  "organism",
  "ploidy",
  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}

```

3.1.5 Retrieve Dataset by Type and ID

Retrieve the record of a dataset object by its ID within its dataset type.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}/{id}">http://<host>:<port>/secondary-analysis/datasets/{shortName}/{id}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from the "shortName" fields of Dataset Type Objects.	Yes	No	Alignments, Barcodes, Contigs, Ccsalignments, Ccsreads, Hdfsubreads, References, Subreads, gmapreferences
id	integer	Unique identifier of a dataset within its dataset type; valid values can be found in "id" fields of objects returned by the List All Datasets by Type request.	Yes	No	4, 12, 17, 133

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Retrieve the record of the dataset object of type 'references' with ID=12:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/references/12>

Retrieve the record of the dataset object of type 'subreads' with ID=17:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/17>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use the List All Dataset Types request.
404 Not Found	Unable to find reference dataset '122'.	Occurs when an invalid value of ID (non-existing dataset identifier within its dataset type) is passed in the request. Note: To get the list of valid ID values, use the List All Datasets by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 28 Jan 2016 00:15:32 GMT
Content-Length	Length of the response body in octets	Yes	727
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Retrieve dataset by type and id - response schema

Example Response

See [Retrieve dataset by type and id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Changed response and response schema: added "datasetType" field. Added new dataset type: "gmapreferences".	No

Retrieve dataset by type and id - response schema

Note: Schema definition for dataset object of a specific type may be obtained through the [Get Dataset Schema By Type](#) request.

Example 1: Schema for dataset object of 'references' type:

```
{
  "$schema" : "http://json-schema.org/draft-
04/schema#",
  "id" :
  "pacbio.secondary.schemas.datasets.references",
  "version" : "1.0.0",
  "title" : "Reference",
  "description" : "Reference DataSet
Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      {
        "title" : "UUID",
        "description" : "UUID of the Reference
DataSet XML",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
        "readOnly" : true
      },
      {
        "name" : {
          "title" : "Reference DataSet Name",
          "description" : "Name of this Reference
DataSet",
          "type" : "string",
          "minLength" :
1,
          "readOnly"
: true
        },
        "datasetType" : {
          "title" : "Dataset Type",
          "description" : "Dataset type, e.g.
PacBio.DataSet.ReferenceSet",
          "type" : "string",
          "minLength" : 1
        },
        "createdAt" : {
          "title" : "Created at",
          "description" : "Time when the DataSet XML was created",
          "type" : "string",
          "format" : "date-time",
          "readOnly" : true
        },
        "version" : {
          "title" : "Version",
          "description" : "Version of this DataSet XML",
          "type" : "string",
          "format" : "sem-ver",
          "minLength" : 5,
          "readOnly" : true
        },
        "numRecords" : {
          "title" : "Num records",

          "description" : "Number of references in this DataSet",
          "type" : "integer",
          "minimum" : 0,
          "readOnly" : true
        },
        "totalLength" : {
```

```

    "title" : "Total length",
    "description" : "Total length of references (in bp) in this DataSet",
    "type" : "integer",
    "minimum" : 0,

    "readOnly" : true
  },

  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },

  "organism" : {
    "title" : "Organism",
    "description" : "Scientific name of the organism for this reference",
    "type" : "string",
    "readOnly" : true
  },

  "ploidy" : {
    "title" : "Ploidy",
    "description" : "Ploidy (1 if unknown) of this reference",
    "type" : "integer",
    "enum" : [0, 1, 2],
    "readOnly" : true
  },

  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Reference DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },

  "description"
  : { "title"
    :
    "Comments",
    "description" : "User description and
    comments", "type" : "string"
  },

  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was
    imported", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :
    true
  },

  "modifiedAt" : {
    "title" : "Updated at",
    "description" : "Time when DataSet metadata was last
    updated", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :

```

```

    true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)", "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"], "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$",
    "readOnly" : true
  },
  "parentAnalysisJobId" : { "title" : "Parent Job Id",
    "description" : "Id of job that generated this DataSet", "type" : "integer",
    "minimum" : 0, "readOnly" : true
  },
  "userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the DataSet", "type" : "string",
    "minLength" : 1, "readOnly" : true
  },
  "smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Installation Id",
    "description" : "Installation that the DataSet belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services level", "type" : "array",
    "items" : {
      "type" : "string"
    }
  }
}

```

```

    },
    "uniqueItems" : true
  }
},
"required" : [
  "id",
  "name",
  "datasetType",
  "createdAt",
  "version",
  "numRecords",
  "totalLength",
  "tags",
  "organism",
  "ploidy",
  "path",
  "description",
  "importedAt",
  "modifiedAt",
  "status",
  "md5",
  "parentAnalysisId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false
}

```

Example 2: Schema for dataset object of 'subreads' type:

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Subread DataSet XML",
      "type" : "string",
      "format" : "uuid",

```



```

    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
  },
  "name" : {
    "title" : "Subread DataSet Name",
    "description" : "Name of this Subread DataSet", "type" : "string",
    "minLength" : 1, "readOnly" : true
  },
  "datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g. PacBio.DataSet.SubreadSet", "type" : "string",
    "minLength" : 1
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was created", "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this DataSet", "type" : "string",
    "format" : "sem-ver",
    "minLength" : 5, "readOnly" : true
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of subreads in this DataSet", "type" : "integer",
    "minimum" : 0, "readOnly" : true
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length (in bp) of Subreads in this DataSet", "type" : "integer",
    "minimum" : 0, "readOnly" : true
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation", "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    }
  }
}

```

```

    },
    "uniqueItems" : true
  },
  "cellPacBarcodes" : {
    "title" : "Cell Pac Barcodes",
    "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[0-9]{32}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : {
    "title" : "Contexts",
    "description" : "Collection metadata contexts",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[mcsp_0-9]{61}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellNames" : {
    "title" : "Well Names",
    "description" : "Well names of the examples sequenced",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[A-H][0-1][0-9]$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellExampleNames" : {
    "title" : "Well Example Names",
    "description" : "Well example name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "bioExampleNames" : {
    "title" : "Biological Example Name",

    "description" : "Names from biological example(s)",
    "type" : "array",

    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "plateIds" : {
    "title" : "Plate Ids",
    "description" : "Example plate
ids", "type" : "array",

```

```

    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentIds" : {
    "title" : "Instrument ids",
    "description" : "Instrument ids (assigned by Instrument Control)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentNames" : {
    "title" : "Instrument Names",
    "description" : "Customer assigned instrument name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runIds" : {
    "title" : "Run id",
    "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
    "type" : "array",
    "items" : {
      "type" : "string",
      "format" : "uuid",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runNames" : {
    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" :

    "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "automationNames" : {

```

```

    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryVersions" : {
    "title" : "Primary Version",
    "description" : "Primary Version",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryAutomationNames" : {
    "title" : "Primary Automation Names",
    "description" : "Automation Primary Protocols",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Subreads DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Description",
    "description" : "User description and comments",
    "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified",
    "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)",
    "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"],
    "readOnly" : true
  }
}

```

```

},
"md5" : {

    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML
file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-
9]{32}$", "readOnly" :
    true
},
"parentAnalysisJobI
d" : { "title" :
    "Parent Job Id",
    "description" : "Id of job that generated this
DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
},
"userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the
DataSet", "type" : "string",
    "minLength" :
    1, "readOnly"
    : true
},
"smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet
belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
},
"projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet
belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$",
    "readOnly" : true
},
"serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services
level", "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
}
},
"required" : [
    "id",
    "name",
    "da
tasetTy
pe",

```

```

    "create
    dAt",
    "versio
    n",
    "numRecords",
    "totalLength",
    "tags",
    "cellPacBarcodes",
    "collectionMetadataContexts",
    "wellNames",
    "wellExampleNames",
    "bioExampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames",
    "path",
    "description",
    "importedAt",
    "modifiedAt",
    "status",
    "md5",
    "parentAnalysisJobId",
    "userId",
    "smrtanalysisInstallId",
    "projectId",
    "serviceTags"
  ],
  "additionalProperties" : false
}

```

Retrieve dataset by type and id - response example

Example 1 - retrieve the record of the dataset object of type 'references' with ID=12:

```

{
  "name" : "All4mer_V2_44_circular_72x_150256",
  "updatedAt" : "2015-11-16T11:16:54.574",
  "path" : "/pbi/jobs/08/pacbio-
  reference/All4mer_V2_44_circular_72x_150256/referenceset.xml", "ploidy" : "haploid",
  "tags" : "",
  "uuid" : "83495502-6233-4379-9e06-fd43fb0738c4",
  "totalLength" : 50256,
  "projectId" : 1,
  "numRecords" : 1,
  "version" : "3.0.1",
  "id" : 12,
  "md5" : "0cd0c08209ba807c4f53ce9b18049168",
  "jobId" : 8,
  "createdAt" : "2015-11-16T11:16:54.574",
  "organism" : "All4mer_V2_44_circular_72x_150256",
  "userId" : 1,
  "datasetType" : "PacBio.DataSet.ReferenceSet",
  "comments" : "reference dataset comments"
}

```

Example 2 - retrieve the record of the dataset object of type 'subreads' with ID=17:

```
{
  "name" :
  "SubreadSetFromMetadata",
  "updatedAt" : "2015-11-
16T14:21:50.017",
  "path" :
  "/pbi/collections/313/r54004_20151116_214425/1_A01/m54004_151116_214433.subreadset.xml"
  , "tags" : "subreadset",
  "instrumentName" : "Inst54004",
  "uuid" : "c8d700d8-f159-408e-bfb9-
31253bc58c22", "totalLength" :
840213826,
  "projectId" : 1,
  "numRecords" : 1036808,
  "wellExampleName" :
  "\"TestExample\"",
  "bioExampleName" :
  "unknown", "version" :
  "3.0.0",
  "id" : 17,
  "md5" : "78049092e54b6e7b520547fc484f7b89",
  "jobId" : 12,
  "createdAt" : "2015-11-16T14:21:50.017",
  "wellName" : "ExamplePlate-1-A-
1", "cellIndex" : 0,
  "userId" : 1,
  "metadataContextId" :
  "m54004_151116_214433", "runName" :
  "unknown",
  "datasetType" :
  "PacBio.DataSet.SubreadSet", "comments"
  : " "
}
```

3.1.6 Retrieve Dataset by Type and UUID

Retrieve the record of a dataset object by its UUID within its dataset type.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}/{uuid}">http://<host>:<port>/secondary-analysis/datasets/{shortName}/{uuid}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from “shortName” fields of Dataset Type Objects.	Yes	No	Alignments, Barcodes, Contigs, Ccsalignments, Ccsreads, Hdfsubreads, References, Subreads, gmapreferences
uuid	string	UUID of a dataset, valid UUID values can be found in “uuid” fields of objects returned by the List All Datasets by Type request.	Yes	No	4, 17, 133

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Retrieve the record of the dataset object of type ‘subreads’ with UUID = 7cf74b62-c6b8-431d-b8ae-7e28cfd8343b: GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/7cf74b62-c6b8-431d-b8ae-7e28cfd8343b>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use the List All Dataset Types request.
404 Not Found	Unable to find subread dataset ‘7cf74b62-c6b8-431d-b8ae-7e28cfd8343c’	Occurs when an invalid value of UUID (non-existing dataset UUID) is passed in the request. Note: To get the list of valid UUID values, use the List All Datasets by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Wed, 01 Mar 2017 22:55:57 GMT
Content-Length	Length of the response body in octets	Yes	775
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Retrieve dataset by type and uuid - response schema

Example Response

See [Retrieve dataset by type and uuid - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Retrieve dataset by type and uuid - response schema

Note: The schema presented below corresponds to the response presented in the [Retrieve dataset by type and uuid - response example](#) and is specific to the dataset of type 'subreads'. Responses and their respective response schemas for other dataset types may be different. Schema definition for dataset object of a specific type may be obtained through the [Get Dataset Schema By Type](#) request.

Schema for dataset object of 'subreads' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.subreads",
  "version" : "1.0.0",
  "title" : "Subread",
  "description" : "Subread DataSet Schema",
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "UUID",
      "description" : "UUID of the Subread DataSet XML",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
      "readOnly" : true
    },
    "name" : {
      "title" : "Subread DataSet Name",
      "description" : "Name of this Subread DataSet",
      "type" : "string",
      "minLength" :

```

```

    1, "readOnly"
    : true
  },
  "datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g.
PacBio.DataSet.SubreadSet", "type" : "string",
    "minLength" : 1
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when the DataSet XML was
created", "type" : "string",
    "format" :
    "date-time",
    "readOnly" :
    true
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this
DataSet", "type" : "string",
    "format" :
    "sem-ver",
    "minLength" :
    5, "readOnly"
    : true
  },
  "numRecords" : {
    "title" : "Num records",
    "description" : "Number of subreads in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "totalLength" : {
    "title" : "Total length",
    "description" : "Total length (in bp) of Subreads in this DataSet",
    "type" : "integer",
    "minimum" : 0,
    "readOnly" : true
  },
  "tags" : {
    "title" : "DataSet tags",
    "description" : "Tags assigned to the DataSet upon creation",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "cellPacBarcodes" : {
    "title" : "Cell Pac Barcodes",

    "description" : "Cell Pac Barcodes (aka SMRT Cell Ids)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[0-9]{32}$",
      "readOnly" : true
    }
  }

```

```

    },
    "uniqueItems" : true
  },
  "collectionMetadataContexts" : {
    "title" : "Contexts",
    "description" : "Collection metadata contexts",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[mcspl_0-9]{61}$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellNames" : {
    "title" : "Well Names",
    "description" : "Well names of the examples sequenced",
    "type" : "array",
    "items" : {
      "type" : "string",
      "pattern" : "^[A-H][0-1][0-9]$",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "wellExampleNames" : {
    "title" : "Well Example Names",
    "description" : "Well example name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "bioExampleNames" : {
    "title" : "Biological Example Name",
    "description" : "Names from biological example(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "plateIds" : {
    "title" : "Plate Ids",
    "description" : "Example plate ids",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentIds" : {
    "title" : "Instrument ids",
    "description" : "Instrument ids (assigned by Instrument Control)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    }
  }
}

```

```

    },
    "uniqueItems" : true
  },
  "instrumentNames" : {
    "title" : "Instrument Names",
    "description" : "Customer assigned instrument name(s)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runIds" : {
    "title" : "Run id",
    "description" : "Pacbio run id (assigned by Run Control). RunDetails/RunId",
    "type" : "array",
    "items" : {
      "type" : "string",
      "format" : "uuid",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "runNames" : {
    "title" : "Run Name",
    "description" : "Pacbio Run Name. RunDetails/Name",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "instrumentControlVersions" : {
    "title" : "Instrument Control Versions",
    "description" : "Version of the instrument control software",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "automationNames" : {
    "title" : "Collection protocol",
    "description" : "Instrument automation protocol names (aka Collection Protocols)",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "primaryVersions" : {
    "title" : "Primary Version",
    "description" : "Primary Version",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    }
  }
}

```

```

    },
    "uniqueItems" : true
  },
  "primaryAutomationNames" : {
    "title" : "Primary Automation Names",
    "description" : "Automation Primary Protocols",
    "type" : "array",
    "items" : {
      "type" : "string",
      "readOnly" : true
    },
    "uniqueItems" : true
  },
  "path" : {
    "title" : "DataSet path",
    "description" : "Path to Subreads DataSet XML",
    "type" : "string",
    "format" : "uri",
    "readOnly" : true
  },
  "description" : {
    "title" : "Description",
    "description" : "User description and comments", "type" : "string"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when DataSet was imported", "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when DataSet metadata was last modified", "type" : "string",
    "format" : "date-time",
    "readOnly" : true
  },
  "status" : {
    "title" : "DataSet Status",
    "description" : "Status of DataSet (New, Pending, Complete, Error)", "type" : "string",
    "enum" : ["New", "Pending", "Complete", "Error"], "readOnly" : true
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of the Dataset XML file", "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$", "readOnly" : true
  },
  "parentAnalysisJobId" : { "title" :

```

```

    "Parent Job Id",
    "description" : "Id of job that generated this
DataSet", "type" : "integer",
    "minimum" :
    0, "readOnly"
    : true
},
"userId" : {
    "title" : "User Id",
    "description" : "User Id that imported the
DataSet", "type" : "string",
    "minLength" :
    1, "readOnly"
    : true
},
"smrtanalysisInstallId" : {
    "title" : "SMRT Analysis Install Id",
    "description" : "SMRT Analysis Install that the DataSet
belongs to", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
},
"projectId" : {
    "title" : "Project Id",
    "description" : "Project that the DataSet
belongs to", "type" : "string",

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$",
    "readOnly" : true
},
"serviceTags" : {
    "title" : "User defined tags",
    "description" : "Tags defined and set at the services
level", "type" : "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
}
},
"required" : [
    "id",
    "name",
    "datasetType",
    "createDate",
    "version",
    "numRecords",
    "totalLength",
    "tags",
    "cellBarcode",

```

```

    "collectionMetadataContexts",
    "wellNames",
    "wellExampleNames",
    "bioExampleNames",
    "plateIds",
    "instrumentIds",
    "instrumentNames",
    "runIds",
    "runNames",
    "instrumentControlVersions",
    "automationNames",
    "primaryVersions",
    "primaryAutomationNames", "path",
    "description",
    "importedAt",
    "modifiedAt",
  },
  "status",
  "md5",
  "parentAnalysisJobId",
  "userId",
  "smrtanalysisInstallId",
  "projectId",
  "serviceTags"
],
"additionalProperties" : false

```

Retrieve dataset by type and uuid - response example

Retrieve the record of the dataset object of type 'subreads' with UUID = 7cf74b62-c6b8-431d-b8ae-7e28cfd8343b:

```
{
  "name" : "54149_DryRun_2Cells_20161219",
  "updatedAt" : "2016-12-19T19:20:46.968Z",
  "path" : "/pbi/collections/314/161247.subreadset.xml",
  "tags" : "subreadset",
  "instrumentName" : "Sequel",
  "uuid" : "7cf74b62-c6b8-431d-b8ae-7e28cfd8343b",
  "totalLength" : 0,
  "projectId" : 1,
  "numRecords" : 0,
  "wellExampleName" :
    "DryRun_1stCell", "bioExampleName" :
    "unknown", "version" : "3.0.1",
  "id" : 5164,
  "md5" : "df4916cfea254cf46a61ebc1815e8917",
  "jobId" : 3634,
  "createdAt" : "2016-12-19T19:20:46.968Z",
  "wellName" : "A01",
  "cellIndex" : 0,
  "userId" : 1,
  "metadataContextId" : "m54149_161219_161247",
  "runName" : "54149_DryRun_2Cells_20161219",
  "datasetType" : "PacBio.DataSet.SubreadSet",
  "comments" : " "
}
```

3.1.7 Retrieve Dataset Details by Type and ID

Fetch the dataset's XML by its ID within its dataset type, and deserialize the raw XML into JSON.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}/{id}/details">http://<host>:<port>/secondary-analysis/datasets/{shortName}/{id}/details

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from “shortName” fields of Dataset Type Objects.	Yes	No	Alignments, Barcodes, Contigs, Ccsalignments, Ccsreads, Hdfsubreads, References, Subreads, gmapreferences
id	integer	Unique identifier of a dataset within its dataset type; valid values can be found in “id” fields of objects returned by the List All Datasets by Type request.	Yes	No	4, 12, 17, 133

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Retrieve the deserialized XML of the dataset object of type ‘references’ with ID=12:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/references/12/details>

Retrieve the deserialized XML of the dataset object of type ‘subreads’ with ID=17:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/17/details>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use the List All Dataset Types request.
404 Not Found	Unable to find reference details dataset ‘122’.	Occurs when an invalid value of ID (non-existing dataset identifier within its dataset type) is passed in the request. Note: To get the list of valid ID values, use the List All Datasets by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 28 Jan 2016 00:23:26 GMT
Content-Length	Length of the response body in octets	Yes	10958
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Retrieve dataset details by type and id - response schema

Example Response

See [Retrieve dataset details by type and id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	<ul style="list-style-type: none"> Changed response and response schema (specific changes depend on dataset type). Added new dataset type: "gmapreferences". 	No

Retrieve dataset details by type and id - response schema

Note: The following schema definition is a JSON translation of the generic PacBioDataModel.xsd schema.

Example 1: Schema for dataset details for an object of 'references' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.references.details",
  "version" : "0.1.0",
  "title" : "Reference Dataset Details",
  "description" : "The raw XML of Reference DataSet de-serialized into JSON",
  "type" : "object",
  "properties" : {
    "Name" : {
      "title" : "Dataset Name",
      "description" : "Name of this dataset",
      "type" : "string"
    },
    "Version" : {
      "title" : "Dataset Version",
      "description" : "Software version corresponding to this dataset",
      "type" : "string"
    },
    "CreatedAt" : {
      "title" : "Created at",

```

```

    "description" : "Time when the dataset XML was created",
    "type" : "string",
    "format" : "date-time"
  },
  "UniqueId" : {
    "title" : "Dataset UUID",
    "description" : "UUID of the dataset XML",
    "type" : "string",
    "format" : "uuid",

    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "MetaType" : {
    "title" : "Dataset MetaType",
    "description" : "MetaType of this dataset, e.g. PacBio.DataSet.ReferenceSet",
    "type" : "string"
  },
  "TimeStampedName" : {
    "title" : "Time-stamped Dataset Name",
    "description" : "Time-stamped name of the dataset XML, e.g. referenceset_150304_231155",
    "type" : "string"
  },
  "ExternalResources" : {
    "title" : "Dataset External Resources",
    "description" : "External resources of this dataset",
    "type" : "object",
    "properties" : {
      "ExternalResource" : {
        "title" : "Dataset External Resource",
        "description" : "External resource of this dataset",
        "type" : "array",

        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "Name" : {
              "title" : "External Resource Name",
              "description" : "Name of this external resource",
              "type" : "string"
            },
            "Description" : {
              "title" : "External Resource Description",
              "description" : "Description of this external resource",
              "type" : "string"
            },
            "Tags" : {
              "title" : "External Resource Tags",
              "description" : "Tags of this external resource",
              "type" : "string"
            },
            "ResourceId" : {
              "title" : "External Resource ID",
              "description" : "ID of this external resource, in form of file path",
              "type" : "string"
            },
            "UniqueId" : {
              "title" : "External Resource UUID",
              "description" : "UUID of this external

```

```

    resource", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$",
  },
  "MetaType" : {
    "title" : "External Resource MetaType",
    "description" : "Resource metatype, e.g. PacBio.References.ReferenceFastaFile", "type" : "string"
  },
  "TimeStampedName" : {
    "title" : "Time-stamped External Resource Name",
    "description" : "Time-stamped name of this external resource", "type" : "string"
  },
  "FileIndices" : {
    "title" : "File Indices of External Resource",
    "description" : "File indices of this external resource", "type" : "object",
    "properties" : {
      "FileIndex" : {
        "title" : "File Index of External Resource",
        "description" : "File index of this external resource", "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "ResourceId" : {
              "title" : "File Index Resource ID",
              "description" : "Resource ID of this file index, in form of file path", "type" : "string"
            },
            "UniqueId" : {
              "title" : "File Index UUID",
              "description" : "UUID of this file index", "type" : "string",
              "format" : "uuid",
              "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}$"
            },
            "MetaType" : {
              "title" : "File Index MetaType",
              "description" : "File index metatype, e.g. PacBio.Index.FastaContigIndex", "type" : "string"
            },
            "TimeStampedName" : {
              "title" : "Time-stamped File Index Name",
              "description" : "Time-stamped name of this file index", "type" : "string"
            }
          }
        }
      }
    }
  }
}

```

```

    }
  }
}
},
"DataSetMetadata" : {
  "title" : "Dataset Metadata",
  "description" : "Metadata of this dataset", "type" : "object",
  "properties" : {
    "TotalLength"
    : {
      "title" : "Dataset Total Length",
      "description" : "Total length of this dataset", "type" : "integer"
    },
    "NumRecords" : {
      "title" : "Number of Records",
      "description" : "Number of records in this dataset",
      "type" : "integer"
    },
    "Organism" : {
      "title" : "Organism",
      "description" : "Organism corresponding to this dataset",
      "type" : "string"
    },
    "Ploidy" : {
      "title" : "Ploidy",
      "description" : "Ploidy corresponding to this dataset",
      "type" : "string"
    },
    "Contigs" : {
      "title" : "Dataset Contigs",
      "description" : "Contigs for this dataset",
      "type" : "object",
      "properties" : {
        "Contig" : {
          "title" : "Dataset Contig",
          "description" : "Contig of this dataset",
          "type" : "array",
          "minItems" : 1,
          "items" : {
            "type" : "object",
            "properties" : {
              "Name" : {
                "title" : "Contig Name",
                "description" : "Name of this contig",
                "type" : "string"
              },
              "Description" : {
                "title" : "Contig Description",
                "description" : "Description of this contig",
                "type" : "string"
              },
              "Length" : {
                "title" : "Contig Length",
                "description" : "Length of this contig",

```

```
      "type" : "integer"
    },
    "Digest" : {
      "title" : "Contig Digest",
      "description" : "Digest of this contig",
      "type" : "string"
    }
  }
}
}
```

Example 2: Schema for dataset details for an object of 'subreads' type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" :
  "pacbio.secondary.schemas.datasets.subreads.details",
  "version" : "0.1.0",
  "title" : "Subread Dataset Details",
  "description" : "The raw XML of Subread DataSet de-serialized into
  JSON", "type" : "object",
  "properties"
  : {
    "Name" :
    {
      "title" : "Dataset Name",
      "description" : "Name of this
      dataset", "type" : "string"
    },
    "Tags" : {
      "title" : "Dataset Tags",
      "description" : "Tags of this
      dataset", "type" : "string"
    },
    "Version" : {
      "title" : "Dataset Version",
      "description" : "Software version corresponding to this
      dataset", "type" : "string"
    },
    "UniqueId" : {
      "title" : "Dataset UUID",
      "description" : "UUID of the
      dataset XML", "type" : "string",
      "format" : "uuid",
      "pattern" : "^([a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12})$"
    },
    "MetaType" : {
      "title" : "Dataset MetaType",
      "description" : "MetaType of this dataset, e.g.
      PacBio.DataSet.SubreadSet", "type" : "string"
    },
    "TimeStampedName" : {
      "title" : "Time-stamped Dataset Name",
      "description" : "Time-stamped name of the dataset XML, e.g.
      subreadbamfile_151116_221101", "type" : "string"
    },
    "ExternalResources" : {
      "title" : "Dataset External Resources",
      "description" : "External resources of this
      dataset", "type" : "object",
      "properties" : {
        "ExternalResource" :
        {
          "title" : "Dataset External Resource",
          "description" : "External resource of this
          dataset", "type" : "array",
          "minItems" : 1,
          "items" : {
            "type" :
            "object",
            "properties" :
```

```

{
  "Name" : {
    "title" : "External Resource Name",
    "description" : "Name of this external
resource", "type" : "string"
  },
  "Description" : {
    "title" : "External Resource Description",
    "description" : "Description of this external
resource", "type" : "string"
  },
  "ResourceId" : {
    "title" : "External Resource ID",
    "description" : "ID of this external resource, in form of file
path", "type" : "string"
  },
  "Version" : {
    "title" : "External Resource Version",
    "description" : "Software version corresponding to this external
resource", "type" : "string"
  },
  "UniqueId" : {
    "title" : "External Resource UUID",
    "description" : "UUID of this external
resource", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-
9]{4}-[a
  },
  "MetaType" : {
    "title" : "External Resource MetaType",
    "description" : "Resource metatype, e.g.
PacBio.Subreads.ScrapBamFile", "type" : "string"
  },
  "TimeStampedName" : {
    "title" : "Time-stamped External Resource Name",
    "description" : "Time-stamped name of this external
resource", "type" : "string"
  },
  "FileIndices" : {
    "title" : "File Indices of External Resource",
    "description" : "File indices of this external
resource", "type" : "object",
    "properties"
      : {
        "FileIndex"
      x" : {
        "title" : "File Index of External Resource",
        "description" : "File index of this external
resource", "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" :
            "object",
          "properties" :
            {
              "ResourceId" : {
                "title" : "File Index Resource ID",
                "description" : "Resource ID (file path) of this file
index", "type" : "string"
              }
            }
        }
      }
    }
  }
}

```



```

        "Version" : {
            "title" : "File Index Version",
            "description" : "Software version of this file
index", "type" : "string"
        },
        "UniqueId" : {
            "title" : "File Index UUID",
            "description" : "UUID of this file
index", "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{4}-[a
        },
        "MetaType" : {
            "title" : "File Index MetaType",
            "description" : "Index metatype, e.g.
PacBio.Index.PacBioInde "type" : "string"
        },
        "TimeStampedName" : {
            "title" : "Time-stamped File Index Name",
            "description" : "Time-stamped name of this file
index", "type" : "string"
        }
    }
}
}
}
}
}
}
}
}
}
}
},
"DataSetMetadata" : {
    "title" : "Dataset Metadata",
    "description" : "Metadata of this
dataset", "type" : "object",
    "properties" :
    {
        "TotalLength
    " : {
        "title" : "Dataset Total Length",
        "description" : "Total length of this
dataset", "type" : "integer"
    },
    "NumRecords" : {
        "title" : "Number of Records",
        "description" : "Number of records in this
dataset", "type" : "integer"
    },
    "Collections" : {
        "title" : "Dataset Collections",
        "description" : "Collections for this
dataset", "type" : "object"
        "properties" : {
            "CollectionMeta
data" : {
                "title" : "Dataset Collection",
                "description" : "Collection of this
dataset", "type" : "array",
                "minItems" : 1,

```

```

"items" : {
  "type" : "object",
  "properties" : {
    "CreatedAt" : {
      "title" : "Created at",
      "description" : "Time when the dataset collection was
created", "type" : "string",
      "format" : "date-time"
    },
    "ModifiedAt" : {
      "title" : "Modified at",
      "description" : "Time when the dataset collection was
modified", "type" : "string",
      "format" : "date-time"
    },
    "UniqueId" : {
      "title" : "Collection UUID",
      "description" : "UUID of this
collection", "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-
[a-fA-F0-9]"
    },
    "MetaType" : {
      "title" : "Collection MetaType",
      "description" : "MetaType of this
collection", "type" : "string"
    },
    "Context" : {
      "title" : "Collection Context",
      "description" : "Context of this
collection", "type" : "string"
    },
    "InstrumentId" : {
      "title" : "Instrument Id",
      "description" : "Instrument Id corresponding to this
collection", "type" : "string"
    },
    "InstrumentName" : {
      "title" : "Instrument Name",
      "description" : "Instrument name corresponding to this
collection", "type" : "string"
    },
    "WellExample" : {
      "title" : "Collection Well Example",
      "description" : "Well example of this
collection", "type" : "object"
      "properties" :
      {
        "Name"
        : {
          "title" : "Example Name",
          "description" : "Name of this
example", "type" : "string"
        }
      }
    },
    "CreatedAt" : {
      "title" : "Created at",
      "description" : "Time when this well example was
created", "type" : "string",
      "format" : "date-time"
    }
  }
}

```

```

    },
    "ModifiedAt" : {
      "title" : "Modified at",
      "description" : "Time when this well example was
        modified", "type" : "string",
      "format" : "date-time"
    },
    "Well Name" : {
      "title" : "Well Name",
      "description" : "Name of this
        well", "type" : "string"
    },
    "Concentration" : {
      "title" : "Concentration",
      "description" : "Concentration of this well
        example", "type" : "number"
    },
    "InsertSize" : {
      "title" : "Insert Size",
      "description" : "Insert size of this
        well example", "type" : "integer"
    },
    "ExampleReuseEnabled" : {
      "title" : "Example Reuse Enabled",
      "description" : "Whether example reuse
        is enabled", "type" : "boolean"
    },
    "StageHotstartEnabled" : {
      "title" : "Stage Hotstart Enabled",
      "description" : "Whether stage hotstart is
        enabled", "type" : "boolean"
    },
    "SizeSelectionEnabled" : {
      "title" : "Size Selection Enabled",
      "description" : "Whether size selection is
        enabled", "type" : "boolean"
    },
    "UseCount" : {
      "title" : "Use Count",
      "description" : "Use count of this well
        example", "type" : "integer"
    }
  }
},
"Automation" : {
  "title" : "Collection Automation",
  "description" : "Automation of this
    collection", "type" : "object"
  "properties" : {
    "AutomationParamet
      ers" : {
        "title" : "Collection Automation Parameters",
        "description" : "Automation parameters of this
          collection", "type" : "object"
        "properties" : {
          "AutomationParamete
            r" : {
              "title" : "Collection Automation Parameter",
              "description" : "Automation parameter of the
                collection", "type" : "array",
              "minItems" : 1,

```

```

    "items" : {
      "type" :
      "object",
      "properties" :
      {
        "Name" : {
          "title" : "Automation Parameter
            Name",
          "description" : "Automation parameter
            name", "type" : "string"
        },
        "CreatedAt" : {
          "title" : "Created at",
          "description" : "Parameter creation
            time", "type" : "string",
          "format" : "date-time"
        },
        "ModifiedAt" : {
          "title" : "Modified at",
          "description" : "Parameter modification
            time", "type" : "string",
          "format" : "date-time"
        },
        "ValueDataType" : {
          "title" : "Automation Parameter Value Data
            Type", "description" : "Automation parameter
            data type", "type" : "string"
        },
        "SimpleValue" : {
          "title" : "Automation Parameter Simple
            Value", "description" : "Automation
            parameter value", "type" : "string"
        }
      }
    }
  },
  "CollectionNumber" : {
    "title" : "Collection Number",
    "description" : "Collection
      number", "type" : "integer"
  },
  "CellIndex" : {
    "title" : "Cell Index",
    "description" : "Cell index of this
      collection", "type" : "integer"
  },
  "CellPac" : {
    "title" : "Cell Pac",
    "description" : "Cell pack of this
      collection", "type" : "object"
    "properties" : {
      "PartNumber" :
      {
        "title" : "Part Number",
        "description" : "Part
          number", "type" : "string"
      }
    }
  },

```

```

"LotNumber" : {
  "title" : "Lot Number",
  "description" : "Lot number",
  "type" : "string"
},
"Barcode" : {
  "title" : "Barcode",
  "description" : "Barcode",
  "type" : "string"
},
"ExpirationDate" : {
  "title" : "Expiration Date",
  "description" : "Expiration date",
  "type" : "string",
  "format" : "date-time"
}
},
"TemplatePrepKit" : {
  "title" : "Template Prep Kit",
  "description" : "Template prep kit of this collection",
  "type" : "object"
  "properties" : {
    "Name" : {
      "title" : "Name",
      "description" : "Name",
      "type" : "string"
    },
    "PartNumber" : {
      "title" : "Part Number",
      "description" : "Part number",
      "type" : "string"
    },
    "LotNumber" : {
      "title" : "Lot Number",
      "description" : "Lot number",
      "type" : "string"
    },
    "Barcode" : {
      "title" : "Barcode",
      "description" : "Barcode",
      "type" : "string"
    },
    "ExpirationDate" : {
      "title" : "Expiration Date",
      "description" : "Expiration date",
      "type" : "string",
      "format" : "date-time"
    },
    "MinInsertSize" : {
      "title" : "Min Insert Size",
      "description" : "Min insert size",
      "type" : "integer"
    },
    "MaxInsertSize" : {
      "title" : "Max Insert Size",
      "description" : "Max insert size",
      "type" : "integer"
    },
    "LeftAdaptorSequence" : {

```

```

        "title" : "Left Adaptor Sequence",
        "description" : "Left adaptor sequence",
        "type" : "string"
    },
    "RightAdaptorSequence" : {
        "title" : "Right Adaptor Sequence",
        "description" : "Right adaptor sequence",
        "type" : "string"
    }
},
"BindingKit" : {
    "title" : "Binding Kit",
    "description" : "Binding kit of this collection",
    "type" : "object"
    "properties" : {
        "Name" : {
            "title" : "Name",
            "description" : "Name",
            "type" : "string"
        },
        "PartNumber" : {
            "title" : "Part Number",
            "description" : "Part number",
            "type" : "string"
        },
        "LotNumber" : {
            "title" : "Lot Number",
            "description" : "Lot number",
            "type" : "string"
        },
        "Barcode" : {
            "title" : "Barcode",
            "description" : "Barcode",
            "type" : "string"
        },
        "ExpirationDate" : {
            "title" : "Expiration Date",
            "description" : "Expiration date",
            "type" : "string",
            "format" : "date-time"
        }
    }
},
"SequencingKitPlate" : {
    "title" : "Sequencing Kit Plate",
    "description" : "Sequencing kit plate of this collection",
    "type" : "object"
    "properties" : {
        "PartNumber" : {
            "title" : "Part Number",
            "description" : "Part number",
            "type" : "string"
        },
        "LotNumber" : {
            "title" : "Lot Number",
            "description" : "Lot number",
            "type" : "string"
        },
        "Barcode" : {
            "title" : "Barcode",

```

```
"description" : "Barcode",
```

```

    "type" : "string"
  },
  "ExpirationDate" : {
    "title" : "Expiration Date",
    "description" : "Expiration date",
    "type" : "string",
    "format" : "date-time"
  }
}

```

Retrieve dataset details by type and id - response example

Example 1 - retrieve the deserialized XML of the dataset object of type 'references' with ID=12:

```
{
  "Name" : "All4mer_V2_44_circular_72x_150256",
  "Version" : "3.0.1",
  "CreatedAt" : "2015-11-16T11:16:54.366-08:00", "UniqueId"
: "83495502-6233-4379-9e06-fd43fb0738c4",
  "MetaType" : "PacBio.DataSet.ReferenceSet",
  "TimeStampedName" : "referenceset_150304_231155",
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "First References FASTA",
      "Description" : "Points to an example references FASTA file.",
      "Tags" : "converted",
      "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta", "UniqueId"
: "bbbbdc0b-136b-460d-93ec-0353bf74e875",
      "MetaType" : "PacBio.ReferenceFile.ReferenceFastaFile",
      "TimeStampedName" : "pacbio_dataset_index-bbbbbdc0b-136b-460d-93ec-0353bf74e875",
      "FileIndices" : {
        "FileIndex" : [{
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.contig.index",
          "UniqueId" : "bd2c4b9e-b319-4c43-b3fe-5a18f017c94e",
          "MetaType" : "PacBio.Index.FastaContigIndex",
          "TimeStampedName" : "pacbio_dataset_index-bd2c4b9e-b319-4c43-b3fe-5a18f017c94e"
        }], {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.fai", "UniqueId"
: "5794ef86-f247-425b-9ff2-cabb84d87397",
          "MetaType" : "PacBio.Index.SamIndex",
          "TimeStampedName" : "pacbio_dataset_index-5794ef86-f247-425b-9ff2-cabb84d87397"
        }], {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.index",
          "UniqueId" : "a428c173-9ee9-47bd-b272-98da4445518a",

          "MetaType" : "PacBio.Index.Indexer",
          "TimeStampedName" : "pacbio_dataset_index-a428c173-9ee9-47bd-b272-98da4445518a"
        }], {
          "ResourceId" : "./sequence/All4mer_V2_44_circular_72x_150256.fasta.sa", "UniqueId"
```



```

      : "cc374eff-c34e-4a47-9f2c-bcf001901b63",
      "MetaType" : "PacBio.Index.SaWriterIndex",
      "TimeStampedName" : "pacbio_dataset_index-cc374eff-c34e-4a47-9f2c-bcf001901b63"
    }
  ]
}
},
"DataSetMetadata" : { "TotalLength"
  : 50256,
  "NumRecords" : 1,
  "Organism" : "All4mer_V2_44_circular_72x_150256", "Ploidy"
  : "haploid",
  "Contigs" : {
    "Contig" : {
      "Name" : "ref000001",
      "Description" : "All4mer.V2.44_circular_72x_150256",
      "Length" : "50256",
      "Digest" : "efbac09bb1f5e5449f51d3c741687612"
    }
  }
}
}
}

```

Example 2 - retrieve the deserialized XML of the dataset object of type 'subreads' with ID=17:

```

{
  "Name" : "SubreadSetFromMetadata",
  "Tags" : "subreadset",
  "Version" : "3.0.0",
  "UniqueId" : "c8d700d8-f159-408e-bfb9-31253bc58c22",
  "MetaType" : "PacBio.DataSet.SubreadSet",
  "TimeStampedName" : "SubreadSetCollection_151116_221101282",
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "subreads bam",
      "Description" : "Points to the subreads bam file.",
      "ResourceId" : "m54004_151116_214433.subreads.bam",
      "Version" : "3.0.1",
      "UniqueId" : "4dc1f25a-63f4-453b-a43f-b98e3bdalca3",
      "MetaType" : "PacBio.SubreadFile.SubreadBamFile",
      "TimeStampedName" : "pacbio_subreadfile_subreadbamfile-151116_221101342",
      "FileIndices" : {
        "FileIndex" : [{
          "ResourceId" : "m54004_151116_214433.subreads.bam.pbi",
          "Version" : "3.0.1",
          "UniqueId" : "5ab7b3cf-3689-49f0-b984-924dd3c95d91",
          "MetaType" : "PacBio.Index.PacBioIndex",
          "TimeStampedName" : "pacbio_index_pacbioindex-151116_221101342"
        }
      ]
    }
  ],
  "ExternalResources" :
    { "ExternalResource"
      : [{
        "Name" : "scraps bam",
        "Description" : "Points to the scraps bam
        file.",
        "ResourceId" :
        "m54004_151116_214433.scraps.bam", "Version"
      }
    ]
  }
}

```

```

:
"3.0.1",
"UniqueId" : "61963fe2-e408-4fba-aa5d-a4169d306520",
"MetaType" : "PacBio.SubreadFile.ScrapBamFile",
"TimeStampedName" : "pacbio_subreadfile_scrapbamfile-151116_221101344", "FileIndices" : {
  "FileIndex" : [{
    "ResourceId" :
      "m54004_151116_214433.scrap.bam.pbi", "Version" :
      "3.0.1",
    "UniqueId" : "a229e5d7-9587-42a7-819a-9b232c2bf3ee", "MetaType" :
      "PacBio.Index.PacBioIndex",
    "TimeStampedName" : "pacbio_index_pacbioindex-151116_221101344"
  ]
}
}, {
  "Name" : "subreads bam",
  "Description" : "Points to the control subreads bam file.",
  "ResourceId" :
    "m54004_151116_214433.control.subreads.bam", "Version" :
    "3.0.1",
  "UniqueId" : "7437fca6-9481-4002-9a59-eb91459a3941",
  "MetaType" : "PacBio.SubreadFile.Control.SubreadBamFile",
  "TimeStampedName" : "pacbio_subreadfile_control_subreadbamfile-151116_221101346",
  "FileIndices" : {
    "FileIndex" : [{
      "ResourceId" : "m54004_151116_214433.control.subreads.bam.pbi",
      "Version" : "3.0.1",
      "UniqueId" : "434911ae-1dad-4224-bd3a-258fe4469d97", "MetaType" :
        "PacBio.Index.PacBioIndex",
      "TimeStampedName" : "pacbio_index_pacbioindex-151116_221101346"
    ]
  }
}, {
  "ExternalResources" : {
    "ExternalResource" : [{
      "Name" : "scrap bam",
      "Description" : "Points to the control scrap bam file.",
      "ResourceId" :
        "m54004_151116_214433.control.scrap.bam", "Version" :
        "3.0.1",
      "UniqueId" : "b3e7fe7f-1a64-4a24-94c6-29d9531914c0",
      "MetaType" : "PacBio.SubreadFile.Control.ScrapBamFile",
      "TimeStampedName" : "pacbio_subreadfile_control_scrapbamfile-151116_221101348", "FileIndices" : {
        "FileIndex" : [{
          "ResourceId" : "m54004_151116_214433.control.scrap.bam.pbi",
          "Version" : "3.0.1",
          "UniqueId" : "8e81bf02-93f2-4858-be2b-4c2a533bd41e",
          "MetaType" : "PacBio.Index.PacBioIndex",
          "TimeStampedName" : "pacbio_index_pacbioindex-151116_221101348"
        ]
      }
    ]
  }
}
}

```

```

    ]
  }
}
],
"DataSetMetadata" : { "TotalLength" :
  840213826,
  "NumRecords" : 1036808,
  "Collections" : {
    "CollectionMetadata" : [{
      "CreatedAt" : "0001-01-01T00:00:00", "ModifiedAt"
      : "0001-01-01T00:00:00",
      "UniqueId" : "edafcb47-8bd8-427f-be3f-49aee347791e", "MetaType"
      : "CollectionMetadata",
      "Context" : "m54004_151116_214433",
      "InstrumentId" : "54004", "InstrumentName" :
      "Inst54004", "WellExample" : {
        "Name" : "\"TestExample\"", "CreatedAt" :
        "0001-01-01T00:00:00", "ModifiedAt" : "0001-
        01-01T00:00:00",
        "WellName" : "ExamplePlate-1-A-1", "Concentration" :
        0.0,
        "InsertSize" : 0, "ExampleReuseEnabled" :
        false, "StageHotstartEnabled" : true,
        "SizeSelectionEnabled" : false, "UseCount"
        : 0
      },
      "Automation" : {
        "Name" : "manualcellprep.py", "AutomationParameters" :
        {
          "AutomationParameter" : [{ "Name" :
            "Exposure",
            "CreatedAt" : "0001-01-01T00:00:00",
            "ModifiedAt" : "0001-01-01T00:00:00",
            "ValueDataType" : "Double", "SimpleValue" :
            "0.0125"
          }, {
            "Name" : "CouplerLaserPower", "CreatedAt" :
            "0001-01-01T00:00:00", "ModifiedAt" : "0001-
            01-01T00:00:00",
            "ValueDataType" : "Double", "SimpleValue" :
            "15.0"
          }, {
            "Name" : "ActiveLaserPower", "CreatedAt" :
            "0001-01-01T00:00:00", "ModifiedAt" : "0001-
            01-01T00:00:00",
            "ValueDataType" : "String", "SimpleValue" :
            "False"
          }, {
            "Name" : "MovieLength",
            "CreatedAt" : "0001-01-01T00:00:00", "ModifiedAt" :
            "0001-01-01T00:00:00",
            "ValueDataType" : "Double",
            "SimpleValue" : "20.0"
          }, {
            "Name" : "CellAtStage",
            "CreatedAt" : "0001-01-01T00:00:00", "ModifiedAt" :
            "0001-01-01T00:00:00",
            "ValueDataType" : "String",
            "SimpleValue" : "True"
          }, {
            "Name" : "sequencingPixelROI", "CreatedAt" :

```

```

    "0001-01-01T00:00:00", "ModifiedAt" : "0001-
    01-01T00:00:00",

    "ValueDataType" : "JSON", "SimpleValue" :
    "[[0,0,1080,1920]]"
  }, {
    "Name" : "traceFilePixelROI", "CreatedAt" :
    "0001-01-01T00:00:00", "ModifiedAt" : "0001-
    01-01T00:00:00",
    "ValueDataType" : "JSON",
    "SimpleValue" : "[[103,192,64,128],[373,192,64,128],[643,192,64,128]]"
  }, {
    "Name" : "UseStageHotStart", "CreatedAt" :
    "0001-01-01T00:00:00", "ModifiedAt" : "0001-
    01-01T00:00:00",
    "ValueDataType" : "String",
    "SimpleValue" : "False"
  }, {
    "Name" : "CollectionNumber", "ValueDataType"
    : "Int32", "SimpleValue" : "0"
  }, {
    "Name" : "CellReuseIndex",
    "ValueDataType" : "Int32",
    "SimpleValue" : "0"
  }, {
    "Name" : "CollectionNumber", "ValueDataType"
    : "Int32", "SimpleValue" : "0"
  }, {
    "Name" : "CellReuseIndex",
    "ValueDataType" : "Int32",
    "SimpleValue" : "0"
  }
  ]
}
},
"CollectionNumber" : 0,
"CellIndex" : 0, "CellPac" : {
  "PartNumber" : "100-513-100",
  "LotNumber" : "007777",
  "Barcode" : "00000133635833070737064980",
  "ExpirationDate" : "2015-02-14"
},
"TemplatePrepKit" : {
  "Name" : "SMRTbell™ Template Prep Kit",
  "PartNumber" : "100259100",
  "LotNumber" : "333333",
  "Barcode" : "333333100259100092215",
  "ExpirationDate" : "2020-09-22",
  "MinInsertSize" : 500,
  "MaxInsertSize" : 20000,
  "LeftAdaptorSequence" : "ATCTCTCTcttttcctcctcctccggttggttggttGAGAGAGAT",
  "RightAdaptorSequence" : "ATCTCTCTcttttcctcctcctccggttggttggttGAGAGAGAT"
},
"BindingKit" : {
  "Name" : "Sequel Binding Kit v1",
  "PartNumber" : "100-619-300",
  "LotNumber" : "444444",
  "Barcode" : "444444100619300092215",
  "ExpirationDate" : "2020-09-22"
},
"SequencingKitPlate" : {

```

Get the list of reports of a dataset object identified by its ID within its dataset type.

Request

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Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from "shortName" fields of Dataset Type Objects.	Yes	No	Alignments, Barcodes, Contigs, Ccsalignments, Ccsreads, Hdfsreads, References, Subreads, gmapreferences
id	integer	Unique identifier of a dataset within its dataset type; valid values can be found in "id" fields of objects returned by the List All Datasets by Type request.	Yes	No	4, 12, 17, 133

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get reports of the dataset object of type 'references' with ID=8542:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/references/8542/reports>

Get reports of the dataset object of type 'subreads' with ID=74:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/74/reports>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use the List All Dataset Types request.
404 Not Found	Unable to find reference dataset '8541'	Occurs when an invalid value of ID (non-existing dataset identifier within its dataset type) is passed in the request. Note: To get the list of valid ID values, use the List All Datasets by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 23 Feb 2017 18:20:20 GMT
Content-Length	Length of the response body in octets	Yes	3136
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Get dataset reports by type and id - response schema

Example Response

See [Get dataset reports by type and id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Get dataset reports by type and id - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.reports",
  "version" : "0.1.0",
  "title" : "Dataset Reports",
  "description" : "Array of dataset report files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "dataStoreFile" : {
        "title" : "Datastore Report File",
        "description" : "Datastore report file",
        "type" : "object",
        "properties" : {
          "name" : {
            "title" : "Report Name",
            "description" : "Name of this report",
            "type" : "string"
          },
          "description" : {
            "title" : "Report Description",
            "description" : "Description of this report",
            "type" : "string"
          },
          "isActive" : {
            "title" : "Is Active",
            "description" : "Flag specifying whether the job associated with this report is active",
            "type" : "boolean"
          }
        }
      }
    }
  }
}
```

```

},
"fileTypeId" : {
  "title" : "File Type Id",
  "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
  "type" : "string"
},
"sourceId" : {
  "title" : "Source Id",
  "description" : "Source identifier of this report, e.g. pbscala::import_dataset",
  "type" : "string"
},
"uuid" : {
  "title" : "UUID",
  "description" : "UUID of the report file",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}"
},
"jobId" : {
  "title" : "Job Id",
  "description" : "Identifier of the job that emitted this report file",
  "type" : "integer"
},
"jobUUID" : {
  "title" : "Job UUID",
  "description" : "UUID of the job that emitted this report file",
  "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this report file was created",
  "type" : "string",
  "format" : "date-time"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when this report file was imported",
  "type" : "string",
  "format" : "date-time"
},
"modifiedAt" : {
  "title" : "Modified at",
  "description" : "Time when this report file was modified",
  "type" : "string",
  "format" : "date-time"
},
"path" : {
  "title" : "Report File Path",
  "description" : "Path to the report file",
  "type" : "string",
  "format" : "uri"
},

"fileSize" : {
  "title" : "Report File Size",
  "description" : "Size of the report file",
  "type" : "integer"
}

```



```

    }
  },
  "required" : [
    "name",
    "description",
    "isActive",
    "fileTypeId",
    "sourceId",
    "uuid",
    "jobId",
    "jobUUID",
    "createdAt",
    "importedAt",
    "modifiedAt",
    "path",
    "fileSize"
  ],
  "additionalProperties" : false
},
"reportTypeId" : {
  "title" : "Report Type Id",
  "description" : "Report type identifier, e.g. mock-report-type-id",
  "type" : "string"
}
},
"required" : [
  "dataStoreFile",
  "reportTypeId"
]
},
"additionalItems" : false
}

```

Get dataset reports by type and id - response example

Example 1 - get reports of the dataset object of type 'references' with ID=8542:

```

[ {
  "dataStoreFile" : {
    "modifiedAt" : "2017-01-31T19:20:51.891Z",
    "name" : "Preassembly report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/4989/falcon_ns.tasks.task_report_preassembly_yield-0/preassembly_yield.js",
    "description" : "description for <FileType id=PacBio.FileTypes.JsonReport name=report >",
    "uuid" : "c5721358-d2e1-440b-848f-f6fc45739a27",
    "fileSize" : 3792,
    "importedAt" : "2017-01-31T19:20:51.891Z",
    "jobId" : 4989,
    "createdAt" : "2017-01-31T19:20:51.891Z",
    "isActive" : true,
    "jobUUID" : "7f348527-e842-45c1-bc26-9b5bb887cdd3",
    "sourceId" : "falcon_ns.tasks.task_report_preassembly_yield-out-0"
  },
  "reportTypeId" : "falcon_ns.tasks.task_report_preassembly_yield"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2017-01-31T19:44:12.105Z",
    "name" : "Coverage Report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",

```

```

"path" : "/pbi/jobs/4989/pbreports.tasks.coverage_report_hgap-0/coverage_report.json",
"description" : "Basic coverage metrics",
"uuid" : "b91f8440-4747-47be-b165-44792cb92853",
"fileSize" : 2440,
"importedAt" : "2017-01-31T19:44:12.105Z",
"jobId" : 4989,
"createdAt" : "2017-01-31T19:44:12.105Z",
"isActive" : true,
  "jobUUID" : "7f348527-e842-45c1-bc26-9b5bb887cdd3",
  "sourceId" : "pbreports.tasks.coverage_report_hgap-out-0"
},
"reportTypeId" : "pbreports.tasks.coverage_report_hgap"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2017-01-31T19:44:37.205Z",
    "name" : "Mapping Statistics Report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/4989/pbreports.tasks.mapping_stats_hgap-0/mapping_stats_hgap.json",
    "description" : "Summary of alignment results",
    "uuid" : "432040d7-5f93-4919-9a60-8ae7be373981",
    "fileSize" : 7623,
    "importedAt" : "2017-01-31T19:44:37.205Z",
    "jobId" : 4989,
    "createdAt" : "2017-01-31T19:44:37.205Z",
    "isActive" : true,
    "jobUUID" : "7f348527-e842-45c1-bc26-9b5bb887cdd3",
    "sourceId" : "pbreports.tasks.mapping_stats_hgap-out-0"
  },
  "reportTypeId" : "pbreports.tasks.mapping_stats_hgap"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2017-01-31T19:50:11.487Z",
    "name" : "Polished Assembly Report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/4989/pbreports.tasks.polished_assembly-0/polished_assembly_report.json", "description" : "Summary of polishing results",
    "uuid" : "a52cf89f-9546-4cc3-8d81-800c8ee006bf",
    "fileSize" : 1490,
    "importedAt" : "2017-01-31T19:50:11.487Z",
    "jobId" : 4989,
    "createdAt" : "2017-01-31T19:50:11.487Z",
    "isActive" : true,
    "jobUUID" : "7f348527-e842-45c1-bc26-9b5bb887cdd3",
    "sourceId" : "pbreports.tasks.polished_assembly-out-0"
  },
  "reportTypeId" : "pbreports.tasks.polished_assembly"
}
]

```

Example 2 - get reports of the dataset object of type 'subreads' with ID=74:

```

[ {
  "dataStoreFile" : {
    "modifiedAt" : "2016-02-09T02:21:08.370Z",
    "name" : "",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",

    "path" : "/pbi/smrtsuite_170220/userdata/jobs_root/000079/import-datastore-report.json",
    "description" : "",
    "uuid" : "607ad1d7-b405-4986-a398-a1849bdeac85",
    "fileSize" : 1634,

```

```

    "importedAt" : "2016-02-09T02:21:08.370Z",
    "jobId" : 79,
    "createdAt" : "2016-02-09T02:21:08.370Z",
    "isActive" : true,
    "jobUUID" : "e5a156b5-15e1-4b4c-8bfd-cec700168aaa",
    "sourceId" : "pbscala::import_dataset"
  },
  "reportTypeId" : "pbscala::import_dataset"
}
]

```

3.1.9 Get Dataset Reports by Type and UUID

Get the list of reports of a dataset object identified by its UUID within its dataset type.

Note: A dataset type is specified by its short name; the short names of dataset types are available in the response to the [List All Dataset Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datasets/{shortName}/{uuid}/reports">http://<host>:<port>/secondary-analysis/datasets/{shortName}/{uuid}/reports

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
shortName	string	Short name of a dataset type; list of all possible dataset types with their short names may be obtained through the List All Dataset Types request; use values from “shortName” fields of Dataset Type Objects.	Yes	No	Alignments, Barcodes, Contigs, Ccsalignments, Ccsreads, Hdfsubreads, References, Subreads, gmapreferences
uuid	string	UUID of a dataset; valid UUID values can be found in “uuid” fields of objects returned by the List All Datasets by Type request.	Yes	No	4, 17, 133

Request Headers	Description	Required	Example
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get reports of the dataset object of type ‘subreads’ with UUID = 7cf74b62-c6b8-431d-b8ae-7e28cf8343b:
 GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/subreads/7cf74b62-c6b8-431d-b8ae-7e28cf8343b/reports>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of shortName (non-existing dataset type) is passed in the request. Note: To get the list of valid shortName values, use the List All Dataset Types request.
404 Not Found	Unable to find subread dataset '7cf74b62-c6b8-431d-b8ae-7e28cfd8343c'	Occurs when an invalid value of UUID (non-existing dataset UUID) is passed in the request. Note: To get the list of valid UUID values, use the List All Datasets by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 02 Mar 2017 01:23:22 GMT
Content-Length	Length of the response body in octets	Yes	677
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Get dataset reports by type and uuid - response schema

Example Response

See [Get dataset reports by type and uuid - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Get dataset reports by type and uuid - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datasets.reports",
  "version" : "0.1.0",
  "title" : "Dataset Reports",
  "description" : "Array of dataset report files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "dataStoreFile" : {
        "title" : "Datastore Report File",
        "description" : "Datastore report file",
        "type" : "object",
        "properties" : {
          "name" : {
            "title" : "Report Name",
            "description" : "Name of this report",
            "type" : "string"
          },
          "description" : {
            "title" : "Report Description",
            "description" : "Description of this report",
            "type" : "string"
          },
          "isActive" : {
            "title" : "Is Active",
            "description" : "Flag specifying whether the job associated with this report is active",
            "type" : "boolean"
          },
          "fileTypeId" : {
            "title" : "File Type Id",
            "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
            "type" : "string"
          },
          "sourceId" : {
            "title" : "Source Id",
            "description" : "Source identifier of this report, e.g. pbscala::import_dataset",
            "type" : "string"
          },
          "uuid" : {
            "title" : "UUID",
            "description" : "UUID of the report file",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
          },
          "jobId" : {
            "title" : "Job Id",
            "description" : "Identifier of the job that emitted this report file",
            "type" : "integer"
          },
          "jobUUID" : {
            "title" : "Job UUID",
            "description" : "UUID of the job that emitted this report file",
            "type" : "string",

```

```

    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this report file was
created", "type" : "string",
    "format" : "date-time"
  },
  "importedAt" : {
    "title" : "Imported at",
    "description" : "Time when this report file was
imported", "type" : "string",
    "format" : "date-time"
  },
  "modifiedAt" : {
    "title" : "Modified at",
    "description" : "Time when this report file was
modified", "type" : "string",
    "format" : "date-time"
  },
  "path" : {
    "title" : "Report File Path",
    "description" : "Path to the report
file", "type" : "string",
    "format" : "uri"
  },
  "fileSize" : {
    "title" : "Report File Size",
    "description" : "Size of the report
file", "type" : "integer"
  }
},
"required" : [
  "name",
  "description",
  "isActive",
  "fileTypeId"
,

```

```

        "sourceId",
        "uuid",
        "jobId",
        "jobUUID",
        "createdAt",
        "importedAt",
        "modifiedAt",
        "path",
        "fileSize"
    ],
    "additionalProperties" : false
},
"reportTypeId" : {
    "title" : "Report Type Id",
    "description" : "Report type identifier, e.g. mock-report-type-id",
    "type" : "string"
}
},
"required" : [
    "dataStoreFile",
    "reportTypeId"
]
},

```

Get dataset reports by type and uuid - response example

Get reports of the dataset object of type 'subreads' with UUID = 7cf74b62-c6b8-431d-b8ae-7e28cfd8343b:

```

[ {
    "dataStoreFile" : {
        "modifiedAt" : "2016-12-19T19:20:47.188Z",
        "name" : "PacBio Report",
        "fileTypeId" : "PacBio.FileTypes.JsonReport",
        "path" : "/pbi/smrtsuite/jobs_root/03634/dataset-reports/loading_xml/loading_xml.json",
        "description" : "PacBio DataSet Report",
        "uuid" : "d19855dd-d080-4b4b-8d3b-83d83b68469e",
        "fileSize" : 1747,
        "importedAt" : "2016-12-19T19:20:47.188Z",
        "jobId" : 3634,
        "createdAt" : "2016-12-19T19:20:47.188Z",
        "isActive" : true,
        "jobUUID" : "fd186334-a468-4b9f-ab42-ac0c73aade6d",
        "sourceId" : "pbscala::import_dataset"
    },
    "reportTypeId" : "pbscala::import_dataset"
}
]

```

3.1.10 Download Datastore Files

Download a datastore report file identified by its UUID.

Note: Valid UUID values can be found in "uuid" fields of objects returned by the [Get Dataset Reports by Type and Id](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/datastore-files/{uuid}/download">http://<host>:<port>/secondary-analysis/datastore-files/{uuid}/download

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
uuid	string	Datastore report file UUID; valid UUID values can be found in “uuid” fields of objects returned by the Get Dataset Reports by Type and Id request.	Yes	No	c5721358-d2e1- 440b-848f-f6fc45739a27 b91f8440-4747-47be-b165-44792cb92853

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Download a datastore report file with UUID = c5721358-d2e1-440b-848f-f6fc45739a27:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datastore-files/c5721358-d2e1-440b-848f-f6fc45739a27/download>

Note: UUID = c5721358-d2e1-440b-848f-f6fc45739a27 is obtain from “uuid” field of an object returned by the [Get Dataset Reports by Type and Id](#) request, such as ‘GET <http://SMRTLinkServername.domain:8081/secondary-analysis/datasets/references/8542/reports>’. See Example 1 in “Get dataset reports - response example” section of the [Get Dataset Reports by Type and Id](#) request.

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	Unable to find DataStoreFile c5721358-d2e1-440b-848f-f6fc45739a28	Occurs when an invalid value of UUID (non-existing datastore report file identifier) is passed in the request. Note: To get the list of valid UUID values, use the Get Dataset Reports by Type and Id request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent.	Yes	Thu, 23 Feb 2017 18:32:53 GMT
Content-Length	The length of the response body in octets.	Yes	3792
Content-Type	The MIME type of this content.	Yes	application/json; charset=UTF-8
Server	A name for the server.	Yes	spray-can/1.3.3
Accept-Ranges	What partial content range types this server supports via byte	Yes	bytes
Content-Disposition	An opportunity to raise a "File Download" dialogue box for a known MIME type with binary format, or suggest a filename for dynamic content.	Yes	attachment; filename=preassembled.json
Etag	An identifier for a specific version of a resource, often a message	Yes	"b700159f5f8ee68"
Last-Modified	The last modified date for the requested object.	Yes	Tue, 31 Jan 2017 19:20:49 GMT

Media Type	Response Body Representation / Schema
application/json	See Download datastore files - response schema

Example Response

See [Download datastore files - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Download datastore files - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.datastore.filetypes.jsonreport",
  "version" : "0.1.0",
  "title" : "PacBio.FileTypes.JsonReport", "description"
  : "PacBio JSON report file schema", "type" : "object",
  "properties" : {
    "title" : {
      "title" : "Report Title",
      "description" : "Title of this report",
      "type" : "string"
    },
    "uuid" : {
      "title" : "Report UUID",
      "description" : "UUID of this report",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "id" : {
      "title" : "Report Type Id",
      "description" : "Identifier of the report type, e.g. mapping_stats, variants",
      "type" : "string"
    },
    "version" : {
      "title" : "Report Version",
      "description" : "Version of this report, e.g. 0.3.25", "type"
      : "string"
    },
    "_comment" : {
      "title" : "Report Comment",
      "description" : "Summary description of this report", "type"
      : "string",
    },
    "dataset_uuids" : {
      "title" : "Dataset UUIDs",
      "description" : "Array of dataset UUIDs",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "uuid" : {
            "title" : "Dataset UUID",
            "description" : "UUID of the
              dataset", "type" : "string"
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-
              9]{12}
          }
        },
        "required" : [
          "uuid",
        ],
        "additionalProperties" : false
      },
      "additionalItems" : false
    },
  },
}

```

```

"attributes" : {
  "title" : "Report Attributes",
  "description" : "Array of the report's attributes",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "id" : {
        "title" : "Attribute Id",
        "description" : "Identifier of the attribute, e.g. mapping_stats.mapped_subreads_n",
        "type" : "string"
      },
      "name" : {
        "title" : "Attribute Name",
        "description" : "Name of the attribute, e.g. Number of Subreads",
        "type" : "string"
      },
      "value" : {
        "title" : "Attribute Value",
        "description" : "Value of the attribute",
        "type" : "number"
      }
    },
    "required" : [
      "id",
      "name",
      "value"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
},
"tables" : {
  "title" : "Report Tables",
  "description" : "Array of the report's tables",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "columns" : {
        "title" : "Table Columns",
        "description" : "Columns of this table",
        "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" : "object",
          "properties" : {
            "header" : {
              "title" : "Column Header",
              "description" : "Header of this column, e.g. Mapped Subreads",
              "type" : "string"
            },
            "id" : {
              "title" : "Column Id",
              "description" : "Identifier of the column, e.g. mapping_stats_table.mapped_subread",
              "type" : "string"
            },
            "values" : {
              "title" : "Column Values",

```

```

        "description" : "Array of values of this column",
        "type" : "array"
        "minItems" : 1,
        "items" : {
            "type" : "object",
            "properties" : {
                "value" : {
                    "title" : "Value",
                    "description" : "A value in the column",
                    "type" : "string or number"
                }
            },
            "required" : [
                "value",
            ],
            "additionalProperties" : false
        },
        "additionalItems" : false
    },
    "required" : [
        "header",
        "id",
        "values"
    ],
    "additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
    "columns"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"plotGroups" : {
    "title" : "Report Plot Groups",
    "description" : "Array of the report's plot groups",
    "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" : "object",
        "properties" : {
            "id" : {
                "title" : "Plot Group Id",
                "description" : "Identifier of the plot group, e.g. mapping_stats.subreadlength_plot",
                "type" : "string"
            },
            "title" : {
                "title" : "Plot Group Title",
                "description" : "Title of the plot group, e.g. Mapped Subread Length",
                "type" : "string"
            },
            "legend" : {
                "title" : "Plot Group Legend",
                "description" : "Name of PNG file that contains legend of this plot group",
                "type" : "string"
            },
            "thumbnail" : {

```

```
    "title" : "Plot Group Thumbnail",
    "description" : "Name of PNG file that contains thumbnail of this plot group",
    "type" : "string"
  },
  "plots" : {
    "title" : "Plots",
    "description" : "Array of plots of this plot group",
    "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" : "object",
      "properties" : {
        "caption" : {
          "title" : "Plot Caption",
          "description" : "Caption of this plot",
          "type" : "string"
        },
        "id" : {
          "title" : "Plot Id",
          "description" : "Identifier of this plot, e.g. mapping_stats.subreadlength_plot",
          "type" : "string"
        },
        "image" : {
          "title" : "Plot Image",
          "description" : "Name of PNG file that contains image of this plot",
          "type" : "string"
        }
      }
    },
    "required" : [
      "caption",
      "id",
      "image"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
}
```

```

    },
    "required" : [
        "id",
        "title",
        "legend",
        "thumbnail",
        "plots"
    ],
    "additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
    "title",
    "uuid",
    "id",
    "version",
    "_comment",
    "dataset_uuids",
    "attributes",
    "tables",
    "plotGroups"
],
"additionalProperties" : false
}

```

Download datastore files - response example

```

{
  "title" : "Preassembly",
  "uuid" : "c5721358-d2e1-440b-848f-f6fc45739a27",
  "id" : "preassembly",
  "version" : "1.0.0",
  "_comment" : "Generated with pbcommand version 0.4.11 at 2017-01-31T11:20:49.323867",
  "dataset_uuids" : [],
  "attributes" : [{
    "id" : "preassembly.genome_length",
    "name" : "Genome Length (user input)",
    "value" : 5000000
  }, {
    "id" : "preassembly.raw_reads",
    "name" : "Number of Filtered Subreads",
    "value" : 411839
  }, {
    "id" : "preassembly.raw_mean",
    "name" : "Filtered Subread Length Mean",
    "value" : 9893
  }, {
    "id" : "preassembly.raw_n50",
    "name" : "Filtered Subread Length (N50)",
    "value" : 14663
  }, {
    "id" : "preassembly.raw_p95",
    "name" : "Filtered Subread Length 95%",
    "value" : 23264
  }
]
}

```

```

}, {
  "id" : "preassembly.raw_bases",
  "name" : "Number of Filtered Subread Bases",
  "value" : 4074480067
}, {
  "id" : "preassembly.raw_coverage",
  "name" : "Filtered Subread Coverage",
  "value" : 814.896
}, {
  "id" : "preassembly.length_cutoff",
  "name" : "Length Cutoff (user input or auto-calc)",
  "value" : 29473
}, {
  "id" : "preassembly.seed_reads",
  "name" : "Number of Seed Reads",
  "value" : 4626
}, {
  "id" : "preassembly.seed_mean",
  "name" : "Seed Read Length Mean",
  "value" : 32439
}, {
  "id" : "preassembly.seed_n50",
  "name" : "Seed Read Length (N50)",
  "value" : 31947
}, {
  "id" : "preassembly.seed_p95",
  "name" : "Seed Read Length 95%",
  "value" : 37602
}, {
  "id" : "preassembly.seed_bases",
  "name" : "Number of Seed Bases (total)",
  "value" : 150061912
}, {
  "id" : "preassembly.seed_coverage",
  "name" : "Seed Coverage (bases/genome_size)",
  "value" : 30.012
}, {
  "id" : "preassembly.preassembled_reads",
  "name" : "Number of Pre-Assembled Reads",
  "value" : 5771
}, {
  "id" : "preassembly.preassembled_mean",
  "name" : "Pre-Assembled Read Length Mean",
  "value" : 22296
}, {
  "id" : "preassembly.preassembled_n50",
  "name" : "Pre-Assembled Read Length (N50)",
  "value" : 28767
}, {
  "id" : "preassembly.preassembled_p95",
  "name" : "Pre-Assembled Read Length 95%",
  "value" : 34658
}, {
  "id" : "preassembly.preassembled_bases",
  "name" : "Number of Pre-Assembled Bases (total)",
  "value" : 128672700
}, {
  "id" : "preassembly.preassembled_coverage",

```

```
    "name" : "Pre-Assembled Coverage (bases/genome_size)",
    "value" : 26
  }, {
    "id" : "preassembly.preassembled_yield",
    "name" : "Pre-Assembled Yield (bases/seed_bases)",
    "value" : 0.857
  }, {
    "id" : "preassembly.preassembled_seed_fragmentation",
    "name" : "Average Number of Reads That Each Seed Is Broken Into",
    "value" : 1.25
  }, {
    "id" : "preassembly.preassembled_seed_truncation",
    "name" : "Average Number of Bases Lost from Each Seed",
    "value" : 4565.811
  }
],
"tables" : [],
"plotGroups" : []
}
```


3.2 Jobs Service

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3.2.1 Overview of Jobs Service

Use Cases

The Jobs Service enables creating, viewing, and deleting jobs, as well as retrieving job datastores, reports, and events.

Key Concepts

Jobs may be categorized as *Dataset Manipulation jobs* and *Analysis jobs*.

Dataset Manipulation jobs enable dataset creation through:

- Importing a dataset from a file
- Importing a datastore from a file
- Merging two datasets of the same type
- Converting an HDF5 file into a dataset
- Converting a FASTA reference file into a dataset
- Converting a FASTA barcodes file into a dataset
- Exporting one or more datasets to a ZIP file

An **analysis job** is defined as a set of the following information:

- An analysis *workflow template* (e.g. resequencing) that refers to a series of *tasks* necessary to perform the analysis;
- Analysis *options* and *parameters*;
- One or more input *datasets*;
- Optional analysis *metadata*, such as a name, comments, owner, permissions.

Job Types

Job Types list:

- **import-dataset**: Import a Pacbio DataSet XML file
- **import-datastore**: Import a PacBio DataStore JSON file

- **merge-datasets:** Merge PacBio XML DataSets of the same type
- **convert-rs-movie:** Import RS metadata.xml and create an HdfSubread DataSet XML file
- **convert-fasta-reference:** Import a FASTA reference file and create a Reference DataSet XML file
- **convert-fasta-barcode:** Import a FASTA barcodes file and create a Barcodes DataSet XML file
- **export-datasets:** Export PacBio XML DataSets to ZIP files
- **pbsmrtpipe:** Run a Secondary Analysis pbsmrtpipe job
- **delete-job:** Delete a services job and remove files

Note: Two more job types returned by [List All Job Types](#) request - 'simple' and 'mock-pbsmrtpipe' - are not in scope of this documentation, as they are used for development/debugging/testing purposes only.

Job States

Job States list:

- **CREATED:** Job resource has been created
- **SUBMITTED:** Job has been submitted to compute resource
- **RUNNING:** Job is currently executing
- **SUCCESSFUL:** Job has successfully completed execution
- **FAILED:** Job has one or more failed tasks
- **KILLED:** Job is forcefully killed
- **STOPPED:** No more tasks will be submitted, but currently running tasks will be allowed to complete

Endpoint-to-User-Role Mapping: Jobs Service API

The following table defines which Jobs Service API endpoints can be accessed by each SMRT Link User Role:

Endpoint	User Role(s)
List All Job Types	Admin, Lab Tech,
List All Jobs by Type	Admin, Lab Tech,
Create Job by Type	Admin, Lab Tech,
Fetch Job by Type and Id	Admin, Lab Tech,
Fetch Job Datastore	Admin, Lab Tech,
Download Job Datastore	Admin, Lab Tech,
Fetch Job Reports	Admin, Lab Tech,
Fetch Job Specific Report	Admin, Lab Tech,
Fetch Job Events	Admin, Lab Tech,
Fetch Job Options	Admin, Lab Tech,
Fetch Job Entry Points	Admin, Lab Tech,
Delete Job	Admin, Lab Tech,

Note: For details on the user authentication mechanism and User Roles, see the *Authentication* section in the [Introduction](#) chapter.

3.2.2 List All Job Types

Get the list of all job types.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/job-types">http://<host>:<port>/secondary-analysis/job-manager/job-types

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all job types:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/job-types>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 04 Feb 2016 18:24:30 GMT
Content-Length	Length of the response body in octets	Yes	877
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all job types - response schema

Example Response

See [List all job types - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	<ul style="list-style-type: none"> Added new job types: export-datasets, delete-job, convert-fasta-barcodes. No changes in response schema. 	Yes.

List all job types - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.jobs.types.list",
  "version" : "0.1.0",
  "title" : "Jobs Types List",
  "description" : "Array of objects describing Job Types",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "jobTypeId" : {
        "title" : "Job Type Id",
        "description" : "Identifier of this job type",
        "type" : "string"
      },
      "description" : {
        "title" : "Job Type Description",
        "description" : "Description of this job type",
        "type" : "string"
      }
    },
    "required" : [
      "jobTypeId",
      "description"
    ]
  },
  "additionalItems" : false
}
```

List all job types - response example

```
[{
  "jobTypeId" : "export-datasets",
  "description" : "Export PacBio XML DataSets to a ZIP file"
}, {
  "jobTypeId" : "convert-rs-movie",
  "description" : "Import RS metadata.xml and create an HdfSubread DataSet XML file"
}, {
  "jobTypeId" : "delete-job",
  "description" : "Delete a services job and remove files"
}, {
  "jobTypeId" : "mock-pbsmrtpipe",
  "description" : "Mock Pbmsrtpipe Job used for Development purposes"
}, {
  "jobTypeId" : "pbsmrtpipe",
  "description" : "Run a Secondary Analysis pbsmrtpipe job"
}, {
  "jobTypeId" : "simple",
  "description" : "Simple Job for debugging and development"
}, {
  "jobTypeId" : "convert-fasta-barcode",
  "description" : "Import a FASTA barcode file and create a Barcodes DataSet XML file"
}, {
  "jobTypeId" : "merge-datasets",
  "description" : "Merge PacBio XML DataSets (Subread, HdfSubread datasets types are supported)"
}, {
  "jobTypeId" : "import-datastore",
  "description" : "Import a PacBio DataStore JSON file"
}, {
  "jobTypeId" : "convert-fasta-reference",
  "description" : "Import a FASTA reference file and create a Reference DataSet XML file"
}, {
  "jobTypeId" : "import-dataset",
  "description" : "Import a Pacbio DataSet XML file"
}
]
```

3.2.3 List All Jobs by Type

Get the list of all job objects of a specific type available on the system.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeld	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fasta- reference

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all jobs of type 'import-dataset' available on the system:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-dataset>

Get the list of all jobs of type 'convert-fasta-reference' available on the system:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there are no jobs corresponding to job type specified in {jobTypeld}, then the response still will be 200 OK, with an empty jobs array in the response body.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeld (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeld values, use the List All Job Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 04 Feb 2016 23:06:16 GMT
Content-Length	Length of the response body in octets	Yes	1211150
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See List all jobs by type - response schema

Example Response

See [List all jobs by type - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Changed response and response schema: added fields smrtlinkVersion, smrtlinkToolsVersion, isActive, createdBy.	No

List all jobs by type - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.jobs.list",
  "version" : "0.1.0",
  "title" : "Jobs List",
  "description" : "Array of Job objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Job Name",
        "description" : "Name of this job",
        "type" : "string"
      },
      "jobTypeId" : {
        "title" : "Job Type Id",
        "description" : "Type identifier of this job",
        "type" : "string"
      },
      "id" : {
        "title" : "Job Id",
        "description" : "Identifier of this job",
        "type" : "integer"
      },
      "uuid" : {
        "title" : "UUID",
        "description" : "UUID of this job",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this job was created",
        "type" : "string",
        "format" : "date-time"
      },
      "updatedAt" : {
        "title" : "Updated at",
        "description" : "Time when this job was updated",
        "type" : "string",
        "format" : "date-time"
      },
      "path" : {
        "title" : "Job path",
        "description" : "Path to the job folder",
        "type" : "string",
        "format" : "uri"
      },
      "state" : {
        "title" : "Job State",
        "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
        "type" : "string"
      }
    }
  }
}

```



```

    "comment" : {
      "title" : "Comment",
      "description" : "Comment describing this
job", "type" : "string"
    },
    "smrtlinkVersion" : {
      "title" : "Smrtlink Version",
      "description" : "Smrtlink version associated with this
job", "type" : "string"
    },
    "smrtlinkToolsVersion" : {
      "title" : "Smrtlink Tools Version",
      "description" : "Smrtlink tools version associated with this
job", "type" : "string"
    },
    "isActive" : {
      "title" : "Is Active",
      "description" : "Flag specifying whether this job is
active", "type" : "boolean"
    },
    "createdBy" : {
      "title" : "Created By",
      "description" : "Login name of the user who created this
job", "type" : "string"
    },
    "jsonSettings" : {
      "title" : "JSON Settings",
      "description" : "Serialized JSON file that contains settings for this
job", "type" : "string"
    }
  },
  "required" : [
    "name",
    "jobTypeId",
    "id",
    "uuid",
    "createdAt",
    "updatedAt",
    "path",
    "state",
    "comment",
    "smrtlinkVersion",
    "smrtlinkToolsVersion",
    "isActive",
    "createdBy",
    "jsonSettings"
  ]
},
"additionalItems" : false
}

```

List all jobs by type - response example

Example 1 - get the list of all jobs of type 'import-dataset':

```

[ {
  "name" : "Job import-dataset",
  "updatedAt" : "2015-11-13T11:50:17.801-08:00",
  "path" :
    "/pbi/smrtsuite_166987/jobs/002",

```

```

"state" : "SUCCESSFUL",
"uuid" : "72804c90-1868-481a-9b55-4b734e858a17",
"jobTypeId" : "import-
dataset", "id" : 2,
"comment" : "Import DataSet
ImportDataSetOptions(/pbi/47.subreadset.xml,PacBio.DataSet.SubreadSe "createdAt" :
"2015-11-13T11:50:17.801-08:00",
"smrtlinkToolsVersion" :
null, "smrtlinkVersion" :
null, "isActive" : true,
"createdBy" : null,
"jsonSettings" :
"{\"path\":\"/pbi/47.subreadset.xml\",\"datasetType\":\"PacBio.DataSet.SubreadS
}, {
"name" : "Job import-dataset",
"updatedAt" : "2015-11-13T11:57:44.743-08:00",
"path" :
"/pbi/smrtsuite_166987/jobs/005",
"state" : "SUCCESSFUL",
"uuid" : "6831fc97-38f3-4122-9472-045fbc9c2536",
"jobTypeId" : "import-
dataset", "id" : 5,
"comment" : "Import DataSet
ImportDataSetOptions(/pbi/47.subreadset.xml,PacBio.DataSet.SubreadSe "createdAt" :
"2015-11-13T11:57:44.743-08:00",
"smrtlinkToolsVersion" :
null, "smrtlinkVersion" :
null, "isActive" : true,
"createdBy" : null,
"jsonSettings" :
"{\"path\":\"/pbi/47.subreadset.xml\",\"datasetType\":\"PacBio.DataSet.SubreadS
}, {
"name" : "Job import-dataset",
"updatedAt" : "2015-11-16T21:55:31.586-08:00",
"path" :
"/pbi/smrtsuite_166987/jobs/018",
"state" : "SUCCESSFUL",
"uuid" : "9ffacda6-4d8c-405f-a3d8-
2fbel6f13014", "jobTypeId" : "import-
dataset",
"id" : 18,
"comment" : "Import DataSet
ImportDataSetOptions(/pbi/41.subreadset.xml,PacBio.DataSet.SubreadSe "createdAt" :
"2015-11-16T21:55:31.586-08:00",
"smrtlinkToolsVersion" :
null, "smrtlinkVersion" :
null, "isActive" : true,
"createdBy" : null,
"jsonSettings" :
"{\"path\":\"/pbi/41.subreadset.xml\",\"datasetType\":\"PacBio.DataSet.SubreadS
}, {
"name" : "Job import-dataset",
"updatedAt" : "2015-11-17T00:26:51.391-08:00",
"path" :
"/pbi/smrtsuite_166987/jobs/019",
"state" : "SUCCESSFUL",
"uuid" : "65fa2786-3b7d-46d5-a34b-
bc47ea56d56d", "jobTypeId" : "import-
dataset",
"id" : 19,
"comment" : "Import DataSet
ImportDataSetOptions(/pbi/37.subreadset.xml,PacBio.DataSet.SubreadSe "createdAt" :

```

```

    "2015-11-17T00:26:51.391-08:00",
    "smrtlinkToolsVersion" : null,
    "smrtlinkVersion" :
    null, "isActive" :
    true, "createdBy" :
    null,
    "jsonSettings" :
    "{\\"path\\":\\"/pbi/37.subreadset.xml\\",\\"datasetType\\":\\"PacBio.DataSet.SubreadS
  }
]

```

Example 2 - get the list of all jobs of type 'convert-fasta-reference':

```

[ {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-13T11:50:07.389-
08:00",
  "path" :
  "/pbi/smrtsuite_166987/jobs/001",
  "state" : "SUCCESSFUL",
  "uuid" : "535b9671-4f2d-435a-a4d6-
34333dac39d0", "jobTypeId" : "convert-
fasta-reference",
  "id" : 1,
  "comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/pbi/lambdaNEB.fasta)", "createdAt" : "2015-11-
13T11:50:07.389-08:00",
  "smrtlinkToolsVersion" :
  null, "smrtlinkVersion" :
  null, "isActive" : true,
  "createdBy" : null,
  "jsonSettings" :
  "{\\"path\\":\\"/pbi/lambdaNEB.fasta\\",\\"name\\":\\"lambdaNEB\\",\\"ploidy\\":\\"haploid
}, {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-13T11:57:37.473-
08:00",
  "path" :
  "/pbi/smrtsuite_166987/jobs/004",
  "state" : "SUCCESSFUL",
  "uuid" : "d0a65373-ac76-44c6-afbe-
614bc15c6d0e", "jobTypeId" : "convert-
fasta-reference",
  "id" : 4,
  "comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/pbi/lambdaNEB.fasta)", "createdAt" : "2015-11-
13T11:57:37.473-08:00",
  "smrtlinkToolsVersion" :
  null, "smrtlinkVersion" :
  null, "isActive" : true,
  "createdBy" : null,
  "jsonSettings" :
  "{\\"path\\":\\"/pbi/lambdaNEB.fasta\\",\\"name\\":\\"lambdaNEB\\",\\"ploidy\\":\\"haploid
}, {
  "name" : "Job convert-fasta-reference",
  "updatedAt" : "2015-11-16T11:16:47.758-
08:00",
  "path" :
  "/pbi/smrtsuite_166987/jobs/008",
  "state" : "SUCCESSFUL",
  "uuid" : "a82f550b-0ad2-4d5b-97bc-

```

```

bfe3a0698905", "jobTypeId" : "convert-
fasta-reference",
"id" : 8,
"comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/mnt/circular72x.fasta)", "createdAt" : "2015-11-
16T11:16:47.758-08:00",
"smrtlinkToolsVersion" :
null, "smrtlinkVersion" :
null, "isActive" : true,
"createdBy" : null,
"jsonSettings" :
"{\"path\":\"/mnt/circular72x.fasta\",\"name\":\"circular72x\",\"ploidy\":\"hap
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-23T13:20:02.706-
08:00",
"path" :
"/pbi/smrtsuite_166987/jobs/139",
"state" : "SUCCESSFUL",
"uuid" : "82c73b2a-9a8c-4fcd-b622-
e75329d300b9", "jobTypeId" : "convert-
fasta-reference",
"id" : 139,
"comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/pbi/ecoliK12.fasta)", "createdAt" : "2015-11-23T13:20:02.706-
08:00",
"smrtlinkToolsVersion" : null,
"smrtlinkVersion" : null,
}, {
"name" : "Job convert-fasta-reference",
"updatedAt" : "2015-11-23T13:20:52.834-
08:00",
"path" :
"/pbi/smrtsuite_166987/jobs/140",
"state" : "FAILED",
"uuid" : "e0e36d53-32de-48e8-8c5c-
c246db842d93", "jobTypeId" : "convert-
fasta-reference",
"id" : 140,
"comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/pbi/palustris.fasta)", "createdAt" : "2015-11-
23T13:20:52.834-08:00",
"smrtlinkToolsVersion" :
null, "smrtlinkVersion" :
null, "isActive" : true,
"createdBy" : null,
"jsonSettings" :
"{\"path\":\"/pbi/palustris.fasta\",\"name\":\"palustris\",\"ploidy\":\"haploid
}
]

```

3.2.4 Create Job by Type

Create a new job of a specific type.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URI
POST	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fasta- reference pbsmrtpipe export-datasets delete-job convert-fasta- barcodes

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Create job by type - request schema

Example Request

See [Create job by type - request example](#)

Response

HTTP Status Code	Error Message	Description
201 Created	None	Request was completed successfully. The newly-created job object will be returned in the response body.
400 Bad Request	The request content was incorrect: Expected Task Option.	Occurs when the "optionTypeId" field was omitted in the "taskOptions" array's elements, in the request body of a create 'pbsmrtpipe' job request.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeId (non-existing job type) was passed in the request. Note: To get the list of valid jobTypeId values, use the List All Job Types request.
404 Not Found	Unable to find Hdf subread dataset '129'	Occurs when a non-existing dataset identifier was passed in the request body of a create 'merge-datasets' job request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json;	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

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415 Un-supported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded
422 Unprocessable Entity	Failed to validate: com.pacbio.secondary.analysis.jobs.InvalidJobOptionError: Unable to find /tmp/file.fasta	Occurs when an invalid path to the input data file was passed in the request body, for example: "path": "/tmp/file.fasta"

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 23 Feb 2016 18:38:46 GMT
Content-Length	Length of the response body in octets	Yes	679
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Create job by type - response schema

Example Response

See [Create job by type - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Added new job types: export-datasets, delete-job, convert-fasta-barcodes. Changed response and response schema: added fields smrtlinkVersion, smrtlinkToolsVersion, isActive, createdBy.	No

Create job by type - request schema

Schema 1 - request body schema to create a job of type 'import-dataset':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.import-dataset.create",
  "version" : "0.1.0",
  "title" : "Create Import-dataset Job",
  "description" : "Schema of request body for creating import-dataset job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "Dataset File Path",
      "description" : "Path to the dataset file",
      "type" : "string",
      "format" : "uri"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Type of this dataset, e.g. PacBio.DataSet.SubreadSet",
      "type" : "string"
    }
  },
  "required" : [
    "path",
    "datasetType"
  ],
  "additionalProperties" : false
}
```

Schema 2 - request body schema to create a job of type 'import-datastore':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.import-datastore.create",
  "version" : "0.1.0",
  "title" : "Create Import-datastore Job",
  "description" : "Schema of request body for creating import-datastore job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "Datastore File Path",
      "description" : "Path to the datastore file",
      "type" : "string",
      "format" : "uri"
    }
  },
  "required" : [
    "path"
  ],
  "additionalProperties" : false
}
```

Schema 3 - request body schema to create a job of type 'merge-datasets':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.merge-datasets.create",
  "version" : "0.1.0",
  "title" : "Create Merge-datasets Job",
  "description" : "Schema of request body for creating merge-datasets job",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Merged Dataset Name",
      "description" : "Name of the resulting merged dataset",
      "type" : "string"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Type of the datasets being merged, e.g. PacBio.DataSet.SubreadSet",
      "type" : "string"
    },
    "ids" : {
      "title" : "Dataset IDs Array",
      "description" : "Integer array of dataset identifiers being merged",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "integer"
      },
      "additionalItems" : false
    }
  },
  "required" : [
    "name",
    "datasetType",
    "ids"
  ],
  "additionalProperties" : false
}
```

Schema 4 - request body schema to create a job of type 'convert-rs-movie':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.convert-rs-movie.create",
  "version" : "0.1.0",
  "title" : "Create Convert-rs-movie Job",
  "description" : "Schema of request body for creating convert-rs-movie job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "RS Movie File Path",

```



```

    "description" : "Path to the RS movie file",
    "type" : "string",
    "format" : "uri"
  },
  "name" : {
    "title" : "RS Movie Name",
    "description" : "Name of this RS movie",
    "type" : "string"
  }
},
"required" : [
  "path",
  "name"
],
"additionalProperties" : false
}

```

Schema 5 - request body schema to create a job of type 'convert-fasta-reference':

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.convert-fasta-reference.create",
  "version" : "0.1.0",
  "title" : "Create Convert-fasta-reference Job",
  "description" : "Schema of request body for creating convert-fasta-reference job",
  "type" : "object",
  "properties" : {
    "path" : {
      "title" : "Reference File Path",
      "description" : "Path to the reference FASTA file",
      "type" : "string",
      "format" : "uri"
    },
    "name" : {
      "title" : "Reference Name",
      "description" : "Name of this reference",
      "type" : "string"
    },
    "ploidy" : {
      "title" : "Reference Ploidy",
      "description" : "Ploidy corresponding to this reference, e.g. diploid, haploid",
      "type" : "string"
    },
    "organism" : {
      "title" : "Reference Organism",
      "description" : "Organism presented by this reference",
      "type" : "string"
    }
  },
  "required" : [
    "path",
    "name",
    "ploidy",
    "organism"
  ],
  "additionalProperties" : false
}

```

Schema 6 - request body schema to create a job of type 'pbsmrtpipe':

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.job.pbsmrtpipe.create",
  "version" : "0.1.0",
  "title" : "Create Pbsmrtpipe Job",
  "description" : "Schema of request body for creating pbsmrtpipe job",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Pbsmrtpipe Job Name",
      "description" : "Name of this pbsmrtpipe job",
      "type" : "string"
    },
    "pipelineId" : {
      "title" : "Pipeline Id",
      "description" : "Pipeline identifier, e.g. pbsmrtpipe.pipelines.sa3_resequencing",
      "type" : "string"
    },
    "entryPoints" : {
      "title" : "Entry Points Array",
      "description" : "Array of pipeline entry points, i.e. input datasets",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "entryId" : {
            "title" : "Entry Id",
            "description" : "Identifier of the entry point, e.g. eid_subread",
            "type" : "string"
          },
          "fileTypeId" : {
            "title" : "File Type Id",
            "description" : "File type identifier (dataset type), e.g. PacBio.DataSet.SubreadSet",
            "type" : "string"
          },
          "datasetId" : {
            "title" : "Dataset Id",
            "description" : "Identifier of the dataset of the entry point",
            "type" : "integer"
          }
        }
      }
    },
    "required" : [
      "entryId",
      "fileTypeId",
      "datasetId"
    ],
    "additionalProperties" : false
  }
}
```

```

    "additionalItems" : false
  },
  "taskOptions" : {
    "title" : "Task Options Array",
    "description" : "Array of pipeline tasks' options, in form of Name-Value-Type
triples", "type" : "array",
    "minItems" : 1,
    "items" : {

      "type" :
      "object",
      "properties" :
      {
        "optionId" : {
          "title" : "Option Id",
          "description" : "Name of this option, e.g.
genomic_consensus.task_options.min_coverage", "type" : "string"
        },
        "value" : {
          "title" : "Option Value",
          "description" : "Value that corresponds to this
option name", "type" : "string/integer/boolean"
        },
        "optionTypeId" : {
          "title" : "Option Type Id",
          "description" : "Type of the option's value, e.g.
pbsmrtpipe.option_types.string", "type" : "string"
        }
      }
    },
    "required" : [
      "optionId",
      "value",
      "optionTypeId"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
},
"workflowOptions" : {
  "title" : "Workflow Options Array",
  "description" : "Array of pipeline workflow options, in form of Name-Value-Type
triples", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" :
    "object",
    "properties" :
    {
      "optionId" : {
        "title" : "Option Id",

```

```

        "description" : "Name of this workflow
        option", "type" : "string"
    },
    "value" : {
        "title" : "Option Value",
        "description" : "Value that corresponds to this
        option name", "type" : "string/integer/boolean"
    },
    "optionTypeId" : {
        "title" : "Option Type Id",
        "description" : "Type of the option's value, e.g.
        pbsmrtpipe.option_types.string", "type" : "string"
    }
},
"required"
" : [
"option
Id",
"value"
,
"option
TypeId"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
"name",
"pipelineId",
"entryPoints"
,
"taskOptions"
,
"workflowOptions"
],
"additionalProperties" : false
}
}

```

Create job by type - request example

Example 1 - request to create a job of type 'import-dataset':

POST <http://SMRTLlinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-dataset/>

```

{
  "path" : "/pbi/collections/170/32.subreadset.xml",
  "datasetType" : "PacBio.DataSet.SubreadSet"
}

```

Example 2 - request to create a job of type 'import-datastore':

POST <http://SMRTLlinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-datastore/>

```
{
  "path" : "/pbi/smrtsuite 166987/jobs/017/datastore.json"
}
```

Example 3 - request to create a job of type 'merge-datasets':

POST <http://SMRTLLinkServername.domain:8081/secondary-analysis/job-manager/jobs/merge-datasets/>

```
{
  "datasetType" : "PacBio.DataSet.SubreadSet",
  "ids" : [
    2,
    85
  ],
  "name" : "mergedSubreadset"
}
```

Example 4 - request to create a job of type 'convert-rs-movie':

POST <http://SMRTLLinkServername.domain:8081/secondary-analysis/job-manager/jobs/convert-rs-movie/>

```
{
  "path" : "/pbi/collections/315/43.metadata.xml",
  "name" : "movie-run-metadata"
}
```

Example 5 - request to create a job of type 'convert-fasta-reference':

POST <http://SMRTLLinkServername.domain:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/>

```
{
  "path" : "/pbi/lambda.fasta.fai",
  "name" : "lambda-ref",
  "ploidy" : "haploid",
  "organism" : "lambda"
}
```

Example 6 - request to create a job of type 'pbsmrtpipe':

POST <http://SMRTLLinkServername.domain:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/>

```
{
  "name" : "A4_All4mer_1hr_launchChem",
  "entryPoints" :
  [
    {
      "entryId" : "eid_subread",
      "fileTypeId" : "PacBio.DataSet.SubreadSet",
      "datasetId" : 74
    },
    {
      "entryId" : "eid_ref_dataset",
      "fileTypeId" : "PacBio.DataSet.ReferenceSet",
      "datasetId" : 133
    }
  ]
}
```

```

],
"workflowOptions" : [],
"taskOptions" :
[
{
  "optionId" : "genomic_consensus.task_options.algorithm",
  "value" : "quiver",
  "optionTypeId" : "pbsmrtpipe.option_types.string"
},
{
  "optionId" : "genomic_consensus.task_options.diploid",
  "value" : false,
  "optionTypeId" : "pbsmrtpipe.option_types.boolean"
},
{
  "optionId" : "genomic_consensus.task_options.min_confidence",
  "value" : 40,
  "optionTypeId" : "pbsmrtpipe.option_types.integer"
},
{
  "optionId" : "genomic_consensus.task_options.min_coverage",
  "value" : 5,
  "optionTypeId" : "pbsmrtpipe.option_types.integer"
},
{
  "optionId" : "pbaligned.task_options.algorithm_options",
  "value" : "-minMatch 12 -bestn 10 -minPctIdentity 70.0",
  "optionTypeId" : "pbsmrtpipe.option_types.string"
},
{
  "optionId" : "pbaligned.task_options.concordant",
  "value" : true,
  "optionTypeId" : "pbsmrtpipe.option_types.boolean"
},
{
  "optionId" : "pbaligned.task_options consolidate_aligned_bam",
  "value" : false,
  "optionTypeId" : "pbsmrtpipe.option_types.boolean"
},
{
  "optionId" : "pbaligned.task_options consolidate_n_files",
  "value" : 1,
  "optionTypeId" : "pbsmrtpipe.option_types.integer"
},
{
  "optionId" : "pbaligned.task_options.hit_policy",
  "value" : "randombest",
  "optionTypeId" : "pbsmrtpipe.option_types.string"
},
{
  "optionId" : "pbaligned.task_options.min_accuracy",
  "value" : 70.0,
  "optionTypeId" : "pbsmrtpipe.option_types.float"
},
{
  "optionId" : "pbaligned.task_options.min_length",
  "value" : 50,
  "optionTypeId" : "pbsmrtpipe.option_types.integer"
}
],
"pipelineId" : "pbsmrtpipe.pipelines.sa3_resequencing"
}

```

Create job by type - response schema

Schema of response body returned upon creation of a job of any type:

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.object",
  "version" : "0.1.0",
  "title" : "Job Object",
  "description" : "Job object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "jobTypeId" : {
      "title" : "Job Type Id",
      "description" : "Type identifier of this job",
      "type" : "string"
    },
    "id" : {
      "title" : "Job Id",
      "description" : "Identifier of this job",
      "type" : "integer"
    },
    "uuid" : {
      "title" : "UUID",
      "description" : "UUID of this job",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this job was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this job was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "path" : {
      "title" : "Job path",
      "description" : "Path to the job folder",
      "type" : "string",
      "format" : "uri"
    },
    "state" : {
      "title" : "Job State",

```

```

    "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED,
    KILLED, STOPPED)"
    "type" : "string"
  },
  "comment" : {
    "title" : "Comment",
    "description" : "Comment describing
    this job", "type" : "string"
  },
  "smrtlinkVersion" : {
    "title" : "Smrtlink Version",
    "description" : "Smrtlink version associated with
    this job", "type" : "string"
  },
  "smrtlinkToolsVersion" : {
    "title" : "Smrtlink Tools Version",
    "description" : "Smrtlink tools version associated with
    this job", "type" : "string"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Flag specifying whether this job is
    active", "type" : "boolean"
  },
  "createdBy" : {
    "title" : "Created By",
    "description" : "Login name of the user who created
    this job", "type" : "string"
  },
  "jsonSettings" : {
    "title" : "JSON Settings",
    "description" : "Serialized JSON file that contains settings for this
    job", "type" : "string"
  }
},
"required" : [
  "name",
  "job
  Type
  Id",
  "id",
  ,
  "uid",
  "created
  At",
  "updated
  At",
  "path",
  "state",
  ,
  "comment",
  "smrtlinkVersion",
  "smrtlinkToolsVersion"
]

```



```
,
  "isActive",
  "createdBy"
],
  "jsonSettings"
},
  "additionalProperties" : false
}
```

Create job by type - response example

Example 1 - response returned upon creation of a job of type 'import-dataset':

```
{
  "name" : "Job import-dataset",
  "updatedAt" : "2016-02-23T11:54:26.429-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "18671448-ff4e-4ed9-a740-1bf8a8f4fcd1", "jobTypeId" : "import-dataset",
  "id" : 135,
  "comment" : "Import DataSet
ImportDataSetOptions(/pbi/collections/170/32.subreadset.xml)", "createdAt" : "2016-02-23T11:54:26.429-08:00",
  "smrtlinkToolsVersion" : null,
  "smrtlinkVersion" : null, "isActive" : true,
  "createdBy" : null,
  "jsonSettings" : "{ \"path\" : \"/pbi/collections/170/32.subreadset.xml\", \"datasetType\" : \"PacBio.Da
}
```

Example 2 - response returned upon creation of a job of type 'import-datastore':

```
{
  "name" : "Job import-datastore",
  "updatedAt" : "2016-02-23T13:20:46.953-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "2975ddb9-9cde-4543-bda1-beed3b20d0da", "jobTypeId" : "import-datastore",
  "id" : 137,
  "comment" : "Import DataStore
ImportDataStoreOptions(/pbi/smrtsuite_166987/jobs/017/datastore.json "createdAt" : "2016-02-23T13:20:46.953-08:00",
  "smrtlinkToolsVersion" : null,
  "smrtlinkVersion" : null, "isActive" : true,
  "createdBy" : null,
  "jsonSettings" : "{ \"path\" : \"/pbi/smrtsuite_166987/jobs/017/datastore.json\"}"
}
```

Example 3 - response returned upon creation of a job of type 'merge-datasets':

```
{
  "name" : "Job merge-datasets",
  "updatedAt" : "2016-02-23T09:41:34.741-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "b8fb1138-4a00-4baf-a754-fc37492d5f00", "jobTypeId" : "merge-datasets",
  "id" : 131,
  "comment" : "Merge Datasets
MergeDataSetOptions(PacBio.DataSet.SubreadSet,List(/pbi/3.dataset.xml, "createdAt" :
"2016-02-23T09:41:34.741-08:00",
"smrtlinkToolsVersion" : null,
"smrtlinkVersion" : null, "isActive" : true,
"createdBy" : null,
"jsonSettings" : "{ \"name\": \"mergedSubreadset\", \"paths\": [\"/pbi/3.dataset.xml\", \"/mnt/7.dataset
```

Example 4 - response returned upon creation of a job of type 'convert-rs-movie':

```
{
  "name" : "Job convert-rs-movie",
  "updatedAt" : "2016-02-23T12:16:21.391-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "92804077-bd0f-41ef-913f-0d7da0ef5656", "jobTypeId" : "convert-rs-movie",
  "id" : 136,
  "comment" : "Convert RS movie
MovieMetadataToHdfSubreadOptions(/pbi/collections/315/43.metadata.xml "createdAt" :
"2016-02-23T12:16:21.391-08:00",
"smrtlinkToolsVersion" : null,
"smrtlinkVersion" : null, "isActive" : true,
"createdBy" : null,
"jsonSettings" : "{ \"path\": \"/pbi/collections/315/43.metadata.xml\", \"name\": \"movie-run-metadata
```

Example 5 - response returned upon creation of a job of type 'convert-fasta-reference':

```
{
  "name" : "Job convert-fasta-reference", "updatedAt" : "2016-02-23T10:38:46.799-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "78ab0501-cbc8-4b99-9869-
```

```

952f2a250ba9", "jobTypeId" : "convert-
fasta-reference",
"id" : 133,
"comment" : "Convert Fasta File to DataSet
ConvertImportFastaOptions(/pbi/lambda.fasta.fai)", "createdAt" : "2016-02-
23T10:38:46.799-08:00",
"smrtlinkToolsVersio
n" : null,
"smrtlinkVersion" :
null, "isActive" :
true, "createdBy" :
null,
"jsonSettings" : "{\"path\":\"/pbi/lambda.fasta.fai\", \"name\":\"lambda-
ref\", \"ploidy\":\"haploid
}

```

Example 6 - response returned upon creation of a job of type 'pbsmrtpipe':

```

{
  "name" :
  "A4_All4mer_1hr_launchChem",
  "updatedAt" : "2016-02-
23T10:52:13.071-08:00",
  "path" : "",
  "state" : "CREATED",
  "uuid" : "327f24af-7259-4f10-9998-c74c712e7c1c",
  "jobTypeId" :
  "pbsmrtpipe", "id"
  : 134,
  "comment" : "pbsmrtpipe
PbSmrtPipeJobOptions(List(BoundEntryPoint(eid_subread,/mnt/19.subreadset.x "createdAt"
: "2016-02-23T10:52:13.071-08:00",
"smrtlinkToolsVersio
n" : null,
"smrtlinkVersion" :
null, "isActive" :
true,
"createdBy" : null,
"jsonSettings" :
"{\"taskOptions\":{\"optionId\":\"genomic_consensus.task_options.algorithm\", \"v
}

```

3.2.5 Fetch Job by Type and ID

Fetch the record of a job object by its ID within its job type.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeld	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fasta- reference pbsmrtpipe export-datasets delete-job convert-fasta- barcodes
jobId	integer	Unique identifier of a job within its job type	Yes	No	3, 40

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch the record of the job object of type 'merge-datasets' with ID=252:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/merge-datasets/252>

Fetch the record of the job object of type 'pbsmrtpipe' with ID=38:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeld (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeld values, use the List All Job Types request.
404 Not Found	Unable to find JobId 3888	Occurs when an invalid value of ID (non-existing job identifier within its job type) is passed in the request. Note: To get the list of valid ID values, use the List All Jobs by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 09 Feb 2016 00:45:10 GMT
Content-Length	Length of the response body in octets	Yes	6231
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch job by type and id - response schema

Example Response

See [Fetch job by type and id - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Added new job types: export-datasets, delete-job, convert-fasta-barcodes. Changed response and response schema: added fields smrtlinkVersion, smrtlinkToolsVersion, isActive, createdBy.	No

Fetch job by type and id - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.object",
  "version" : "0.1.0",
  "title" : "Job Object",
  "description" : "Job object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "jobTypeId" : {
      "title" : "Job Type Id",
      "description" : "Type identifier of this job",
      "type" : "string"
    }
  }
}
```

```

},
"id" : {
  "title" : "Job Id",
  "description" : "Identifier of
this job", "type" : "integer"
},
"uuid" : {
  "title" : "UUID",
  "description" : "UUID of this
job", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}$"
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this job was
created", "type" : "string",
  "format" : "date-time"
},
"updatedAt" : {
  "title" : "Updated at",
  "description" : "Time when this job was
updated", "type" : "string",
  "format" : "date-time"
},
"path" : {
  "title" : "Job path",
  "description" : "Path to the job
folder", "type" : "string",
  "format" : "uri"
},
"state" : {
  "title" : "Job State",
  "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED,
KILLED, STOPPED)"
  "type" : "string"
},
"comment" : {
  "title" : "Comment",
  "description" : "Comment describing
this job", "type" : "string"
},
"smrtlinkVersion" : {
  "title" : "Smrtlink Version",
  "description" : "Smrtlink version associated with
this job", "type" : "string"
},
"smrtlinkToolsVersion" : {
  "title" : "Smrtlink Tools Version",
  "description" : "Smrtlink tools version associated with
this job", "type" : "string"
},
"isActive" : {
  "title" : "Is Active",
  "description" : "Flag specifying whether this job is
active", "type" : "boolean"
},
"createdBy" : {
  "title" : "Created By",

```

```

        "description" : "Login name of the user who created
        this job", "type" : "string"
    },
    "jsonSettings" : {
        "title" : "JSON Settings",
        "description" : "Serialized JSON file that contains settings for this
        job", "type" : "string"
    }
},
"required" : [
    "name",
    "jobType",
    "id",
    "updatedAt",
    "path",
    "state",
    "comment",
    "smrtlinkVersion",
    "smrtlinkToolsVersion",
    "isActive",
    "createdBy",
    "jsonSettings"
],
"additionalProperties" : false
}

```

Fetch job by type and id - response example

Example 1 - fetch the record of the job object of type 'merge-datasets' with ID=252:

```

{
    "name" : "Job merge-datasets",
    "updatedAt" : "2015-11-30T15:06:10.415-08:00",
    "path" :
    "/pbi/smrtsuite_166987/jobs/252",
    "state" : "SUCCESSFUL",
    "uuid" : "1576c753-478c-46c6-ad44-9936665df1b7",
    "jobTypeId" :
    "merge-datasets",
    "id" : 252,
    "comment" : "Merge Datasets
    MergeDataSetOptions(PacBio.DataSet.SubreadSet,List(/pbi/35.subreadset. "createdAt" :
    "2015-11-30T15:06:10.415-08:00",
    "smrtlinkToolsVersi:

```

```

null,
"smrtlinkVersion" :
null, "isActive" :
true,
"createdBy" : null,
"jsonSettings" :
"{\"name\":\"AutoMergedSubreads\",\"paths\":[\"/pbi/35.subreadset.xml\",\"/pbi/55
}

```

Example 2 - fetch the record of the job object of type 'pbsmrtpipe' with ID=38:

```

{
  "name" :
  "A4_All4mer_1hr_launchChem",
  "updatedAt" : "2015-11-
18T12:24:35.413-08:00",
  "path" :
  "/pbi/smrtsuite_166987/jobs/038",
  "state" : "SUCCESSFUL",
  "uuid" : "ea3c0962-f37b-43b6-82b3-
051d41dc82c0", "jobTypeId" :
  "pbsmrtpipe",
  "id" : 38,
  "comment" : "pbsmrtpipe
PbSmrtPipeJobOptions(List(BoundEntryPoint(eid_subread,/pbi/93.subreadset.x "createdAt"
: "2015-11-18T12:24:35.413-08:00",
"smrtlinkToolsVersio
n" : null,
"smrtlinkVersion" :
null, "isActive" :
true,
"createdBy" : null,
"jsonSettings" :
"{\"taskOptions\":[{\"optionId\":\"genomic_consensus.task_options.algorithm\",\"v
}

```

3.2.6 Fetch Job Datastore

Fetch datastore with datastore files, emitted from a job identified by job type and job id.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fasta- reference pbsmrtpipe export-datasets delete-job convert-fasta- barcodes
jobId	integer	Unique identifier of a job within its job type	Yes	No	5, 28

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch datastore with datastore files emitted from the job of type 'import-dataset' with ID=17:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-dataset/17/datastore>

Fetch datastore with datastore files emitted from the job of type 'merge-datasets' with ID=252:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/merge-datasets/252/datastore>

Fetch datastore with datastore files emitted from the job of type 'convert-fasta-reference' with ID=4:

GET

<http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/4/datastore>

Fetch datastore with datastore files emitted from the job of type 'pbsmrtpipe' with ID=38:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38/datastore>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there is no job corresponding to the jobId value passed in the request, or the job exists but does not have datastore files, then the response still will be 200 OK, with an empty array of datastore files in the response body.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use the List All Job Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 05 Feb 2016 00:44:28 GMT
Content-Length	Length of the response body in octets	Yes	957
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch job datastore - response schema

Example Response

See [Fetch job datastore - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Added new job types: export-datasets, delete-job, convert-fasta-barcodes. Changed response and response schema: added fields name, description, isActive.	No

Fetch job datastore - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.datastore",
  "version" : "0.1.0",
  "title" : "Job Datastore",
  "description" : "Array of job datastore files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Datastore File Name",
        "description" : "Name of this datastore file",
        "type" : "string"
      },
      "description" : {
        "title" : "Datastore File Description",
        "description" : "Description of this datastore file",
        "type" : "string"
      },
      "isActive" : {
        "title" : "Is Active",
        "description" : "Flag specifying whether the job associated with this datastore is active",
        "type" : "boolean"
      },
      "fileTypeId" : {
        "title" : "File Type Id",
        "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
        "type" : "string"
      },
      "sourceId" : {
        "title" : "Source Id",
        "description" : "Source identifier of this datastore, e.g. pbscala::import_dataset",
        "type" : "string"
      },
      "uuid" : {
        "title" : "UUID",
        "description" : "UUID of the datastore file",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "jobId" : {
        "title" : "Job Id",
        "description" : "Identifier of the job that emitted this datastore file",
        "type" : "integer"
      },
      "jobUUID" : {
        "title" : "Job UUID",
        "description" : "UUID of the job that emitted this datastore file",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this datastore file was

```

```

        "created", "type" : "string",
        "format" : "date-time"
    },
    "importedAt" : {
        "title" : "Imported at",
        "description" : "Time when this datastore file was
imported", "type" : "string",
        "format" : "date-time"
    },
    "modifiedAt" : {
        "title" : "Modified at",
        "description" : "Time when this datastore file was
modified", "type" : "string",
        "format" : "date-time"
    },
    "path" : {
        "title" : "Datastore File Path",
        "description" : "Path to the
datastore file", "type" :
"string",
        "format" : "uri"
    },
    "fileSize" : {
        "title" : "Datastore File Size",
        "description" : "Size of the datastore file",
        "type" : "integer"
    }
},
"required" : [
    "name",
    "description",
    "isActive",
    "fileTypeId",
    "sourceId",
    "uuid",
    "jobId",
    "jobUUID",
    "createdAt",
    "importedAt",
    "modifiedAt",
    "path",
    "fileSize"
]
},
"additionalItems" : false
}

```

Fetch job datastore - response example

Example 1 - fetch datastore with datastore files emitted from the job of type 'import-dataset' with ID=17:

```
[{
  "modifiedAt" : "2015-11-16T21:42:05.882",
  "name" : "DRYRUN1Cell",
  "fileTypeId" : "PacBio.DataSet.SubreadSet",
  "path" : "/pbi/collections/313/m54012_151117_023631.subreadset.xml",
  "description" : "Imported DataSet on 2015-11-16T21:42:05.882",
  "uuid" : "9d372452-b24b-41a9-9a3d-3ab9d477b953",
  "fileSize" : 9592,
  "importedAt" : "2015-11-16T21:42:05.882",
  "jobId" : 17,
  "createdAt" : "2015-11-16T21:42:05.882",
  "isActive" : true,
  "jobUUID" : "14bac755-2357-4ade-b26a-eb6af41e7c77",
  "sourceId" : "pbscala::import_dataset"
}, {
  "modifiedAt" : "2015-11-16T21:42:06.023",
  "name" : "PacBio Report loading_xml_report",
  "fileTypeId" : "PacBio.FileTypes.JsonReport",
  "path" : "/pbi/smrtsuite_166987/jobs/017/import-datastore-report.json",
  "description" : "PacBio DataSet Report for loading_xml_report",
  "uuid" : "1ab22884-c789-4767-b269-3055c2b68e29",
  "fileSize" : 1634,
  "importedAt" : "2015-11-16T21:42:06.023",
  "jobId" : 17,
  "createdAt" : "2015-11-16T21:42:06.023",
  "isActive" : true,
  "jobUUID" : "14bac755-2357-4ade-b26a-eb6af41e7c77",
  "sourceId" : "pbscala::import_dataset"
}]
```

Example 2 - fetch datastore with datastore files emitted from the job of type 'merge-datasets' with ID=252:

```
[{
  "modifiedAt" : "2015-11-30T15:06:12.287",
  "name" : "DRYRUN1Cell2",
  "fileTypeId" : "PacBio.DataSet.SubreadSet",
  "path" : "/pbi/smrtsuite_166987/jobs/252/merged.dataset.xml",
  "description" : "Imported DataSet on 2015-11-30T15:06:12.287",
  "uuid" : "7aaf577a-9416-413f-9948-7c8d3dfa2a8d",
  "fileSize" : 13240,
  "importedAt" : "2015-11-30T15:06:12.287",
  "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.287",
  "isActive" : true,
  "jobUUID" : "1576c753-478c-46c6-ad44-9936665df1b7",
  "sourceId" : "pbscala::merge_dataset"
}]
```

Example 3 - fetch datastore with datastore files emitted from the job of type 'convert-fasta-reference' with ID=4:

```
[{
  "modifiedAt" : "2015-11-13T11:57:39.331",
  "name" : "LambdaReference004",
  "fileTypeId" : "PacBio.DataSet.ReferenceSet",
  "path" : "/pbi/smrtsuite_166987/jobs/004/pacbio-reference/lambdaNEB/referenceset.xml",
  "description" : "Imported Reference DataSet on 2015-11-13T11:57:39.331",
  "uuid" : "e5433224-d185-4e73-af45-ee7c8154a768",
  "fileSize" : 2427,
  "importedAt" : "2015-11-13T11:57:39.331",
  "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.331",
  "isActive" : true,
  "jobUUID" : "d0a65373-ac76-44c6-afbe-614bc15c6d0e",
  "sourceId" : "pbscala::convert_fasta_to_dataset"
}]
```

Example 4 - fetch datastore with datastore files emitted from the job of type 'pbsmrtpipe' with ID=38:

```
[{
  "modifiedAt" : "2015-11-18T12:58:47.944",
  "name" : "AlignmentSet-1",
  "fileTypeId" : "PacBio.DataSet.AlignmentSet",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_alignmentset-1/file.alignmentset.xml",
  "description" : "Imported Alignment DataSet on 2015-11-18T12:58:47.944",
  "uuid" : "a8284a60-5b17-1744-6c31-44264dffdbb0",
  "fileSize" : 89832,
  "importedAt" : "2015-11-18T12:58:47.944",
  "jobId" : 38,
  "createdAt" : "2015-11-18T12:58:47.944",
  "isActive" : true,
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_alignmentset-PacBio.DataSet.AlignmentSet"
}, {
  "modifiedAt" : "2015-11-18T13:00:21.104",
  "name" : "PacBio Report loading_xml_report",
  "fileTypeId" : "PacBio.FileTypes.JsonReport",
  "path" : "/pbi/jobs/038/tasks/pbreports.tasks.mapping_stats-0/mapping_stats_report.json",
  "description" : "PacBio DataSet Report for loading_xml_report",
  "uuid" : "63e31de0-d295-41e6-bf1a-8d3beda06892",
  "fileSize" : 6326,
  "importedAt" : "2015-11-18T13:00:21.104",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:21.104",
  "isActive" : true,
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
}, {
  "modifiedAt" : "2015-11-18T13:00:43.196",
  "name" : "PacBioGff-1",
  "fileTypeId" : "PacBio.FileTypes.gff",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_gff-1/file.gff",
  "description" : "Imported GFF file on 2015-11-18T13:00:43.196",
  "uuid" : "0e89ecf9-416f-439d-bfe4-
```

```

78e539b41454",
"fileSize" : 21783,
"importedAt" : "2015-11-18T13:00:43.196",

"jobId" : 38,
"createdAt" : "2015-11-18T13:00:43.196",
"isActive" : true,
"jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
"sourceId" : "pbsmrtpipe.tasks.gather_gff-PacBio.FileTypes.gff"
}, {
  "modifiedAt" : "2015-11-18T13:00:51.943",
  "name" : "ContigSet-1",
  "fileTypeId" : "PacBio.DataSet.ContigSet",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_contigset-1/file.contigset.xml", "description" : "Imported Contig DataSet on 2015-11-18T13:00:51.943",
  "uuid" : "2d0c7852-0050-6bd3-d6af-0d8020112f54",
  "fileSize" : 11886,
  "importedAt" : "2015-11-18T13:00:51.943",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:51.943",
  "isActive" : true,

  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_contigset-PacBio.DataSet.ContigSet"
}, {
  "modifiedAt" : "2015-11-18T13:00:56.217",
  "name" : "PacBioFasta-1",
  "fileTypeId" : "PacBio.FileTypes.Fastq",
  "path" : "/pbi/jobs/038/tasks/pbsmrtpipe.tasks.gather_fastq-1/file.fastq",
  "description" : "Imported FASTA file on 2015-11-18T13:00:56.217",
  "uuid" : "9d310ee2-e15b-4683-80af-2c7af2415075",
  "fileSize" : 99068,
  "importedAt" : "2015-11-18T13:00:56.217",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:00:56.217",
  "isActive" : true,
  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe.tasks.gather_fastq-PacBio.FileTypes.Fastq"
}, {
  "modifiedAt" : "2015-11-18T13:01:05.093",
  "name" : "Job Master Log",
  "fileTypeId" : "PacBio.FileTypes.log",
  "path" : "/pbi/jobs/038/logs/master.log",
  "description" : "Job Master log of pbsmrtpipe job",
  "uuid" : "3ba3fad4-613f-477e-b397-8464d5c366a3",
  "fileSize" : 634,
  "importedAt" : "2015-11-18T13:01:05.093",
  "jobId" : 38,
  "createdAt" : "2015-11-18T13:01:05.093",
  "isActive" : true,

  "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
  "sourceId" : "pbsmrtpipe::master.log"
}, {
  "modifiedAt" : "2015-11-18T13:01:05.287",
  "name" : "Pbsmrtpipe Job Log",
  "fileTypeId" : "PacBio.FileTypes.log",
  "path" : "/pbi/jobs/038/logs/pbsmrtpipe.log",
  "description" : "Created pbsmrtpipe log on 2015-11-18T13:01:05.287",
  "uuid" : "9c183df8-f7eb-475f-a0f7-e3697370b1dd",

```

```

    "fileSize" : 0,
    "importedAt" : "2015-11-18T13:01:05.287",
    "jobId" : 38,
    "createdAt" : "2015-11-18T13:01:05.287",
    "isActive" : true,
    "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",

    "sourceId" : "pbsmrtpipe:pbsmrtpipe.log"
  }
]

```

3.2.7 Download Job Datastore Files

Download a datastore file, identified by its UUID, from a job datastore.

Note: Valid UUID values can be found in “uuid” fields of objects returned by the [Fetch Job Datastore](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore/{uuid}/download">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/datastore/{uuid}/download

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fastq-reference pbsmrtpipe export-datasets delete-job convert-fastq-barcode
jobId	integer	Unique identifier of a job within its job type; list of valid job identifiers may be obtained through the List All Jobs by Type request.	Yes	No	5, 28, 5197
Uuid	string	UUID of a job datastore file; valid UUID values can be found in the “uuid” fields of objects returned by the Fetch Job Datastore request.	Yes	No	0da45a53-0790-42ca-a0e4-1de51b132f80c1d5be2a-095e-49d1-b57d-1dda167b396610f51a45-85ee-413f-b31d-e92071d44309

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json application/xml text/plain

Media Type	Request Body Representation / Schema
application/json application/xml	Request schema is N/A, as this is GET request.

Note: Media Type depends on the type of file to be downloaded:

- If the UUID corresponds to a JSON file, then the Media Type in the Accept header must be set to 'application/json'
- If the UUID corresponds to an XML file, then the Media Type in the Accept header must be set to 'application/xml'
- If the UUID corresponds to a text file, then the Media Type in the Accept header must be set to 'text/plain'

Example Request

Download file with UUID = 10f51a45-85ee-413f-b31d-e92071d44309 from datastore of the job of type 'import-dataset' with job Id = 5197:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-dataset/5197/datastore/10f51a45-85ee-413f-b31d-e92071d44309/download>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeId (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeId values, use the List All Job Types request.
404 Not Found	Unable to find JobId 3888.	Occurs when an invalid value of jobId (non-existing job identifier within its job type) is passed in the request. Note: To get the list of valid jobId values, use the List All Jobs by Type request.
404 Not Found	Unable to find DataStoreFile 10f51a45-85ee-413f-b31d-e92071d44308	Occurs when an invalid value of UUID (non-existing datastore file identifier) is passed in the request. Note: To get the list of valid UUID values, use the Fetch Job Datastore request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example 'Accept: application/xml' in a request where UUID corresponds to a JSON file.

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 23 Feb 2017 19:49:57 GMT
Content-Disposition	An opportunity to raise a "File Download" dialogue box for a known MIME type with binary format, or suggest a filename for dynamic content.	Yes	attachment; filename=job-5197-loading_xml.json
Content-Length	Length of the response body in octets	Yes	1776
Content-Type	MIME type of this content	Yes	application/json
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Download job datastore files - response schema
application/xml	
text/plain	

Note: Response Media Type depends on the type of file that was downloaded:

- If it was a JSON file, then the Response Media Type in the Content-Type header will be 'application/json'
- If it was an XML file, then the Response Media Type in the Content-Type header will be 'application/xml'
- If it was a text file, then the Response Media Type in the Content-Type header will be 'text/plain'

Example Response

See [Download job datastore files - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Download job datastore files - response schema

Note: The response schema presented below is applicable only for the case when the downloaded file is a JSON report file.

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" :
    "pacbio.secondary.schemas.job.datastore.files.download",
  "version" : "0.1.0",
  "title" : "Job Datastore File Download Schema",
  "description" : "Job datastore file download
schema", "type" : "object",
  "properties"
    : {
```

```

"title" : {
  "title" : "Datastore File Title",
  "description" : "Title of this
datastore file", "type" : "string"
},
"uuid" : {
  "title" : "Datastore File UUID",
  "description" : "UUID of this
datastore file", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
},
"id" : {
  "title" : "Datastore File Type Id",
  "description" : "Identifier of the datastore file type, e.g. mapping_stats,
variants", "type" : "string"
},
"version" : {
  "title" : "Datastore File Version",
  "description" : "Version of this datastore file, e.g.
0.3.25", "type" : "string"
},
"_comment" : {
  "title" : "Datastore File Comment",

  "description" : "Summary description of this datastore
file", "type" : "string",
},
"dataset_uuids" : {
  "title" : "Dataset UUIDs",
  "description" : "Array of dataset
UUIDs", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" :
    "object",
    "properties" :
    {
      "uuid" : {
        "title" : "Dataset UUID",
        "description" : "UUID of the
dataset", "type" : "string"
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-
fA-F0-9]{12}
      }
    }
  },
  "required" : [
    "uuid",
  ],

  "additionalProperties" : false
},
"additionalItems" : false
},
"attributes" :
{
  "title" : "Datastore File Attributes",
  "description" : "Array of the datastore file's
attributes", "type" : "array",
  "minItems" : 1,

```

```

"items" : {
  "type" : "object",
  "properties" : {
    "id" : {
      "title" : "Attribute Id",
      "description" : "Identifier of the attribute, e.g.
mapping_stats.mapped_subreads_n", "type" : "string"
    },
    "name" : {
      "title" : "Attribute Name",
      "description" : "Name of the attribute, e.g. Number of
Subreads", "type" : "string"
    },
    "value" : {
      "title" : "Attribute Value",
      "description" : "Value of the
attribute", "type" : "number"
    }
  },
  "required" : [
    "id",
    "name",
    "value"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
},

"tables" : {
  "title" : "Datastore File Tables",
  "description" : "Array of the datastore file's
tables", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "columns" : {
        "title" : "Table Columns",
        "description" : "Columns of this
table", "type" : "array",
        "minItems" : 1,
        "items" : {
          "type" :
"object",
          "properties" :
{
            "header" : {
              "title" : "Column Header",
              "description" : "Header of this column, e.g. Mapped
Subreads", "type" : "string"
            },
            "id" : {
              "title" : "Column Id",
              "description" : "Identifier of the column, e.g.
mapping_stats_table.mapped_subread", "type" : "string"
            },
            "values" : {

```

```

        "title" : "Column Values",
        "description" : "Array of values of this
column", "type" : "array"
        "minItems" : 1,
        "items" : {
            "type" :
            "object",
            "properties"
            : {
                "value" : {
                    "title" : "Value",
                    "description" : "A value in the
column", "type" : "string or number"
                }
            },
            "required" : [
                "value",
            ],
            "additionalProperties" : false
        },
        "additionalItems" : false
    },
    "required" : [
        "header",
    ], "id", "values"
    "additionalProperties" : false
    },
    "additionalItems" : false
}
},
"required" :
    [
        "columns"
    ],
    "additionalProperties" : false
},
"additionalItems" : false
},
"plotGroups"
: {
    "title" : "Datastore File Plot Groups",
    "description" : "Array of the datastore file's plot
groups", "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" :
        "object",
        "properties" : {
            "id" : {
                "title" : "Plot Group Id",
                "description" : "Identifier of the plot group, e.g.
mapping_stats.subreadlength_plot",
                "type" : "string"
            },
            "title" : {
                "title" : "Plot Group Title",
                "description" : "Title of the plot group, e.g. Mapped
Subread Length", "type" : "string"
            }
        }
    }
},

```

```

"legend" : {

  "title" : "Plot Group Legend",
  "description" : "Name of PNG file that contains legend of this
plot group", "type" : "string"
},
"thumbnail" : {
  "title" : "Plot Group Thumbnail",
  "description" : "Name of PNG file that contains thumbnail of this plot
group", "type" : "string"
},
"plots" : {
  "title" : "Plots",
  "description" : "Array of plots of this plot
group", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" :
    "object",
    "properties" : {
      "caption" : {
        "title" : "Plot Caption",
        "description" : "Caption of this
plot", "type" : "string"
      },
      "id" : {
        "title" : "Plot Id",
        "description" : "Identifier of this plot, e.g.
mapping_stats.subreadlength_plot", "type" : "string"
      },
      "image" : {
        "title" : "Plot Image",
        "description" : "Name of PNG file that contains image of
this plot", "type" : "string"
      }
    },
    "required" : [
      "caption",
      "id",
      "image"
    ]
  }
}

```

```

        "
        ,
        "
        i
        m
        a
        g
        e
        "
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
}
},
"required" : [
  "id",
  "title",
  "leg
end"
,
  "thu
mbna
il",
  "plo
ts"
],
  "additionalProperties" : false
},
  "additionalItems" : false
}
},
"required" : [
  "title",
  "uuid",
  "id", "version", "_comment",
  "dataset_uuids", "attributes", "tables", "plotGroups"
],
"additionalProperties" : false

```

Download job datastore files - response example

```
{
  "_comment" : "Generated with pbcommand version 0.4.11 at 2017-02-02T09:25:53.524093",
  "attributes" : [],
  "dataset_uuids" : [],
  "id" : "loading_xml_report",
  "plotGroups" : [],
  "tables" : [{
    "columns" : [{
      "header" : "Collection Context",
      "id" : "loading_xml_report.loading_xml_table.collection_context",
      "values" : [
        "NA"
      ]
    }, {
      "header" : "Productive ZMWs",
      "id" : "loading_xml_report.loading_xml_table.productive_zmws",
      "values" : [
        1019235
      ]
    }, {
      "header" : "Productivity 0 (%)",
      "id" : "loading_xml_report.loading_xml_table.productivity_0",
      "values" : [
        100
      ]
    }, {
      "header" : "Productivity 1 (%)",
      "id" : "loading_xml_report.loading_xml_table.productivity_1",
      "values" : [
        0
      ]
    }, {
      "header" : "Productivity 2 (%)",
      "id" : "loading_xml_report.loading_xml_table.productivity_2",
      "values" : [
        1.723
      ]
    }
  ]
}, {
  "id" : "loading_xml_report.loading_xml_table",
  "title" : "Loading Statistics"
}
],
"title" : "Report loading_xml_report",
"uuid" : "10f51a45-85ee-413f-b31d-e92071d44309",
"version" : "1.0.0"
}
```

3.2.8 Fetch Job Reports

Fetch job report files, emitted from a job identified by job type and job id.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URI
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/reports">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/reports

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fastq-reference pbsmrtpipe export-datasets delete-job convert-fastq-barcode
jobId	integer	Unique identifier of a job within its job type.	Yes	No	11. 252

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch job report files emitted from the job of type 'import-dataset' with ID=5:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/import-dataset/5/reports>

Fetch job report files emitted from the job of type 'pbsmrtpipe' with ID=38:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/38/reports>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there is no job corresponding to the jobId value passed in the request, or the job exists but does not have report files, then the response still will be 200 OK, with an empty array of report files in the response body.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeId (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeId values, use the List All Job Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Tue, 09 Feb 2016 00:57:13 GMT
Content-Length	Length of the response body in octets	Yes	649
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch job reports - response schema

Example Response

See [Fetch job reports - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Added new job types: export-datasets, delete-job, convert-fasta-barcode. Changed response and response schema: added fields name, description, is Active.	No

Fetch job reports - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.reports",
  "version" : "0.1.0",
  "title" : "Job Reports",
  "description" : "Array of job report files",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "dataStoreFile" : {
        "title" : "Datastore Report File",
        "description" : "Datastore report file",
        "type" : "object",
        "properties" : {
          "name" : {
            "title" : "Report Name",
            "description" : "Name of this report",
            "type" : "string"
          },
          "description" : {
            "title" : "Report Description",
            "description" : "Description of this report",
            "type" : "string"
          },
          "isActive" : {
            "title" : "Is Active",
            "description" : "Flag specifying whether the job associated with this report is active",
            "type" : "boolean"
          },
          "fileTypeId" : {
            "title" : "File Type Id",
            "description" : "File type identifier, e.g. PacBio.FileTypes.JsonReport",
            "type" : "string"
          },
          "sourceId" : {
            "title" : "Source Id",
            "description" : "Source identifier of this report, e.g. pbscala::import_dataset",
            "type" : "string"
          },
          "uuid" : {
            "title" : "UUID",
            "description" : "UUID of the report file",
            "type" : "string",
            "format" : "uuid",
            "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
          },
          "jobId" : {
            "title" : "Job Id",
            "description" : "Identifier of the job that emitted this report file",
            "type" : "integer"
          },
          "jobUUID" : {
            "title" : "Job UUID",

```

```
"description" : "UUID of the job that emitted this report
file", "type" : "string",
"format" : "uuid",
"pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-
[a-fA-F0-9]{12}
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this report file was
created", "type" : "string",
  "format" : "date-time"
},
"importedAt" : {
  "title" : "Imported at",
  "description" : "Time when this report file was
imported", "type" : "string",
  "format" : "date-time"
},
"modifiedAt" : {
  "title" : "Modified at",
  "description" : "Time when this report file was
modified", "type" : "string",
  "format" : "date-time"
},
"path" : {
  "title" : "Report File Path",
  "description" : "Path to the
report file",
```

```

        "type" : "string",
        "format" : "uri"
    },
    "fileSize" : {
        "title" : "Report File Size",
        "description" : "Size of the report file",
        "type" : "integer"
    }
},
"required" : [
    "name",
    "description",
    "isActive",
    "fileTypeId",
    "sourceId",
    "uuid",
    "jobId",
    "jobUUID",
    "createdAt",
    "importedAt",
    "modifiedAt",
    "path",
    "fileSize"
],
"additionalProperties" : false
},
"reportTypeId" : {
    "title" : "Report Type Id",
    "description" : "Report type identifier, e.g. mock-report-type-id",
    "type" : "string"
}
},
"required" : [
    "dataStoreFile",
    "reportTypeId"
]
},
"additionalItems" : false
}

```

Fetch job reports - response example

Example 1 - fetch job report files emitted from the job of type 'import-dataset' with ID=5:

```

[ {
    "dataStoreFile" : {
        "modifiedAt" : "2015-11-13T11:57:46.727",
        "name" : "PacBio Report loading_xml_report",
        "fileTypeId" : "PacBio.FileTypes.JsonReport",
        "path" : "/pbi/smrtsuite_166987/jobs/005/import-datastore-report.json",
        "description" : "PacBio DataSet Report for loading_xml_report",
        "uuid" : "3f623691-587a-4231-9faf-10988b374fbd",
        "fileSize" : 1634,
        "importedAt" : "2015-11-13T11:57:46.727",
    }
}

```

```

    "jobId" : 5,
    "createdAt" : "2015-11-13T11:57:46.727",
    "isActive" : true,
    "jobUUID" : "6831fc97-38f3-4122-9472-045fbc9c2536",
    "sourceId" : "pbscala::import_dataset"
  },
  "reportTypeId" : "mock-report-type-id"
}
]

```

Example 2 - fetch job report files emitted from the job of type 'pbsmrtpipe' with ID=38:

```

[ {
  "dataStoreFile" : {
    "modifiedAt" : "2015-11-18T13:00:21.104",
    "name" : "PacBio Report loading_xml_report",
    "fileTypeId" :
      "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/038/tasks/pbreports.tasks.mapping_stats-
0/mapping_stats_report.json", "description" : "PacBio DataSet Report for
loading_xml_report",
    "uuid" : "63e31de0-d295-41e6-bf1a-
8d3beda06892", "fileSize" : 6326,
    "importedAt" : "2015-11-18T13:00:21.104",
    "jobId" : 38,
    "createdAt" : "2015-11-18T13:00:21.104",
    "isActive" : true,
    "jobUUID" : "ea3c0962-f37b-43b6-82b3-051d41dc82c0",
    "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}
]

```

3.2.9 Fetch Job Specific Report

Fetch a specific report emitted from a job identified by job id.

Examples of specific reports include Mapping Stats Report, Variants Report, etc.

Note: Fetching of a specific report of a job is performed in two steps: first, fetching the list of all reports of a job, with use of the [Fetch Job Reports](#) request, to find out the UUID of the specific report of interest; second, fetching the specific report with use of the above UUID.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobId}/reports/{uuid}">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobId}/reports/{uuid}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobId	integer	Unique identifier of a job.	Yes	No	8963
uuid	string	Report UUID; valid report UUID values can be found in "uuid" fields of objects returned by the Fetch Job Reports request.	Yes	No	c1338f53-672f- 4a4f-98f2-c3ef2a7d2e57 67cb8880-173c- 4236-bb0d-2758f1985ccb

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Step 1 - fetch the list of all reports of the job with ID = 8963:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/8963/reports>

Step 2a - fetch the mapping stats report, which has UUID = c1338f53-672f-4a4f-98f2-c3ef2a7d2e57:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/8963/reports/c1338f53-672f- 4a4f-98f2-c3ef2a7d2e57>

Step 2b - fetch the variants report, which has UUID = 67cb8880-173c-4236-bb0d-2758f1985ccb:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/8963/reports/67cb8880- 173c-4236-bb0d-2758f1985ccb>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there is no job corresponding to the jobId value passed in the request, however, the report UUID value passed in the request is valid, then the response will be 200 OK, and the corresponding report will be returned in the response body.
404 Not Found	Unable to find report 67cb8880-173c-4236-bb0d-2758f1985cab	Occurs when an invalid value of the report UUID is passed in the request. Note: Valid report UUID values can be found in "uuid" fields of objects returned by the Fetch Job Reports request.

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406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
--------------------	---	---

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 05 May 2016 23:48:22 GMT
Content-Length	Length of the response body in octets	Yes	6837
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch job specific report - response schema

Example Response

See [Fetch job specific report - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	No changes in request. Changes in response and response schema depend on job type and report type.	Yes.

Fetch job specific report - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.reports.report",
  "version" : "0.1.0",
  "title" : "Job Report",
  "description" : "Job report schema",
  "type" : "object",
  "properties": {
    "title": {
      "title": "Report Title",
      "description": "Title of this report",
      "type": "string"
    },
    "uuid": {
      "title": "Report UUID",
      "description": "UUID of this report",
      "type": "string",
      "format": "uuid"
    }
  }
}
```



```

    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "id" : {
    "title" : "Report Type Id",
    "description" : "Identifier of the report type, e.g. mapping_stats_variants", "type" : "string"
  },
  "_version" : {
    "title" : "Report Version",
    "description" : "Version of this report, e.g. 0.3.25", "type" : "string"
  },
  "_changelist" : {
    "title" : "Report Changelist",
    "description" : "Perforce changelist number of this report", "type" : "string",
  },
  "dataset_uuids" : {
    "title" : "Dataset UUIDs",
    "description" : "Array of dataset UUIDs", "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" : "object",
      "properties" : {
        "uuid" : {
          "title" : "Dataset UUID",
          "description" : "UUID of the dataset", "type" : "string",
          "format" : "uuid",
          "pattern" : "[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}"
        }
      }
    },
    "required" : [
      "uuid",
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false
},
"attributes" : {
  "title" : "Report Attributes",
  "description" : "Array of the report's attributes", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "id" : {

```

```

        "title" : "Attribute Id",
        "description" : "Identifier of the attribute, e.g.
mapping_stats.mapped_subreads_n", "type" : "string"
    },
    "name" : {
        "title" : "Attribute Name",
        "description" : "Name of the attribute, e.g. Number of
Subreads", "type" : "string"
    },
    "value" : {
        "title" : "Attribute Value",
        "description" : "Value of the
attribute", "type" : "number"
    }
},
"required" : [
    "id",
    "
n
a
m
e
",
    ,
    "
v
a
l
u
e
"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"tables" : {
    "title" : "Report Tables",
    "description" : "Array of the
report's tables", "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" :
        "object",
        "properties" :
        {
            "columns" : {
                "title" : "Table Columns",
                "description" : "Columns of
this table", "type" : "array",
                "minItems" : 1,
                "items" : {
                    "type" :
                    "object"
                },
                ,
                "properties" : {
                    "header" : {
                        "title" : "Column Header",
                        "description" : "Header of this column, e.g. Mapped

```

```

        Subreads", "type" : "string"
    },
    "id" : {
        "title" : "Column Id",
        "description" : "Identifier of the column, e.g.
mapping_stats_table.mapped_subread "type" : "string"
    },
    "values" : {
        "title" : "Column Values",
        "description" : "Array of values of this
column", "type" : "array"
        "minItems" : 1,
        "items" : {
            "type" :
            "object",
            "properties
            " : {
                "value" : {
                    "title" : "Value",
                    "description" : "A value in the
column", "type" : "string or
number"
                }
            },
            "required" : [
                "value",
            ],
            "additionalProperties" : false
        },
        "additionalItems" : false
    }
},
"required" : [
    "header",
    "id", "values"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"require
d" : [
    "colum
ns"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"plotGroups" : {
    "title" : "Report Plot Groups",
    "description" : "Array of the report's plot
groups", "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" : "object", "properties" : {
            "id" : {
                "title" : "Plot Group Id",
                "description" : "Identifier of the plot group, e.g.
mapping_stats.subreadlength_plot", "type" : "string"

```

```

    },
    "title" : {
      "title" : "Plot Group Title",
      "description" : "Title of the plot group, e.g. Mapped
        Subread Length", "type" : "string"
    },
    "legend" : {
      "title" : "Plot Group Legend",
      "description" : "Name of PNG file that contains legend of this
        plot group", "type" : "string"
    },
    "thumbnail" : {
      "title" : "Plot Group Thumbnail",
      "description" : "Name of PNG file that contains thumbnail of this plot
        group", "type" : "string"
    },
    "plots" : {
      "title" : "Plots",
      "description" : "Array of plots of this plot
        group", "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" :
        "object",
        "properties" : {
          "caption" : {
            "title" : "Plot Caption",
            "description" : "Caption of this
              plot", "type" : "string"
          },
          "id" : {
            "title" : "Plot Id",
            "description" : "Identifier of this plot, e.g.
              mapping_stats.subreadlength_plot", "type" : "string"
          },
          "image" : {
            "title" : "Plot Image",
            "description" : "Name of PNG file that contains image of
              this plot", "type" : "string"
          }
        }
      },
    },
    "required" : [
      "caption",
      "id", "image"
    ],
    "additionalProperties" : false
  },
  "additionalItems" : false

```

```

    }
  },
  "required" : [
    "id",
    "title",
    "legend",
    "thumbnail",
    "plots"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
  "title",
  "uuid",
  "id",
  "_version",
  "_changelist",
  "dataset_uuids",
  "attributes",
  "tables",
  "plotGroups"
],
"additionalProperties" : false
}
}

```

Fetch job specific report - response example

Step 1 - fetch the list of all reports of the job with ID = 8963:

```

[ {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:34:54.111Z",
    "name" : "PacBio Json Report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.mapping_stats-0/mapping_stats_report.json", "description" : "Output report JSON file.",
    "uuid" : "c1338f53-672f-4a4f-98f2-c3ef2a7d2e57", "fileSize" : 6837,
    "importedAt" : "2016-05-04T16:34:54.111Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:34:54.111Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.mapping_stats-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:35:33.774Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.top_variants-0/report.json",
    "description" : "Filename of JSON output report",
    "uuid" : "bbbcb4c-1340-49e0-9d8c-38dd538cb228",
    "fileSize" : 1752,
    "importedAt" : "2016-05-04T16:35:33.774Z",
    "jobId" : 8963,

```

```

    "createdAt" : "2016-05-04T16:35:33.774Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.top_variants-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:35:53.123Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.coverage_report-0/coverage_report.json", "description" : "Path to write report JSON output",
    "uuid" : "d4930a9f-d071-4249-92f8-41d527fb7110",
    "fileSize" : 1625,
    "importedAt" : "2016-05-04T16:35:53.123Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:35:53.123Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.coverage_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:36:09.228Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",

    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.variants_report-0/report.json",
    "description" : "Filename of JSON output report",
    "uuid" : "67cb8880-173c-4236-bb0d-2758f1985ccb",
    "fileSize" : 3060,
    "importedAt" : "2016-05-04T16:36:09.228Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:36:09.228Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.variants_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}, {
  "dataStoreFile" : {
    "modifiedAt" : "2016-05-04T16:36:44.379Z",
    "name" : "JSON report",
    "fileTypeId" : "PacBio.FileTypes.JsonReport",
    "path" : "/pbi/jobs/8963/tasks/pbreports.tasks.sat_report-0/report.json", "description" : "Filename of JSON output report",
    "uuid" : "15f636ee-d098-41e4-bf84-537d70a643bc",
    "fileSize" : 950,
    "importedAt" : "2016-05-04T16:36:44.379Z",
    "jobId" : 8963,
    "createdAt" : "2016-05-04T16:36:44.379Z",
    "jobUUID" : "f2d087f7-2c88-4e0d-977d-59db73b84eff",
    "sourceId" : "pbreports.tasks.sat_report-PacBio.FileTypes.JsonReport"
  },
  "reportTypeId" : "mock-report-type-id"
}

```

Step 2a - fetch the mapping stats report, which has UUID = c1338f53-672f-4a4f-98f2-c3ef2a7d2e57:

```

{
  "_changelist" : "UNKNOWN",
  "_version" : "0.3.25",
  "attributes" : [{

```

```

      "id" : "mapping_stats.mapped_subread_concordance_mean",
      "name" : "Mean Mapped Concordance",
      "value" : 0.8574
    }, {
      "id" : "mapping_stats.mapped_subreads_n",
      "name" : "Number of Subreads (mapped)",
      "value" : 887868
    }, {
      "id" : "mapping_stats.mapped_subread_bases_n",
      "name" : "Number of Subread Bases (mapped)",
      "value" : 1408496081
    }, {
      "id" : "mapping_stats.mapped_subread_readlength_mean",
      "name" : "Subread Length Mean (mapped)",
      "value" : 1586
    }, {
      "id" : "mapping_stats.mapped_subreadlength_n50",
      "name" : "Subread Length N50 (mapped)",
      "value" : 1910
    }, {
      "id" : "mapping_stats.mapped_subreadlength_q95",
      "name" : "Subread Length 95% (mapped)",
      "value" : 2710
    }, {
      "id" : "mapping_stats.mapped_subread_readlength_max",
      "name" : "Subread Length Max (mapped)",
      "value" : 5860
    }, {
      "id" : "mapping_stats.mapped_reads_n",
      "name" : "Number of Polymerase Reads (mapped)",
      "value" : 298092
    }, {
      "id" : "mapping_stats.mapped_readlength_mean",
      "name" : "Polymerase Read Length Mean (mapped)",
      "value" : 4996
    }, {
      "id" : "mapping_stats.mapped_readlength_n50",
      "name" : "Polymerase Read N50 (mapped)",
      "value" : 7967
    }, {
      "id" : "mapping_stats.mapped_readlength_q95",
      "name" : "Polymerase Read Length 95% (mapped)",
      "value" : 10940
    }, {
      "id" : "mapping_stats.mapped_readlength_max",
      "name" : "Polymerase Read Length Max (mapped)",
      "value" : 19888
    }
  ],
  "dataset_uids" : ["e440ace2-cb8c-18e6-22db-602e5e6d7e30"],
  "id" : "mapping_stats",
  "plotGroups" : [{
    "id" : "mapping_stats.readlength_plot",
    "legend" : null,
    "plots" : [{
      "caption" : null,
      "id" : "mapping_stats.readlength_plot.readlength_plot",
      "image" : "mapped_readlength_histogram.png"
    }
  ]
},
  "thumbnail" : "mapped_readlength_histogram_thumb.png",
  "title" : "Mapped Polymerase Read Length"

```

```

    }, {
      "id" : "mapping_stats.subread_concordance_group",
      "legend" : null,
      "plots" : [{
        "caption" : null,
        "id" : "mapping_stats.subread_concordance_group.concordance_plot",
        "image" : "mapped_subread_concordance_histogram.png"
      }
    ],
    "thumbnail" : "mapped_subread_concordance_histogram_thumb.png",
    "title" : "Mapped Subread Concordance"
  }, {
    "id" : "mapping_stats.subreadlength_plot",
    "legend" : null,
    "plots" : [{
      "caption" : null,
      "id" : "mapping_stats.subreadlength_plot.subreadlength_plot",
      "image" : "mapped_subreadlength_histogram.png"
    }
  ],
  "thumbnail" : "mapped_subreadlength_histogram_thumb.png",
  "title" : "Mapped Subread Length"
}, {
  "id" : "mapping_stats.rainbow_plot",
  "legend" : null,
  "plots" : [{
    "caption" : "Mapped Concordance vs. Read Length",
    "id" : "mapping_stats.rainbow_plot.rainbow_plot",
    "image" : "mapped_concordance_vs_read_length.png"
  }
],
"thumbnail" : null,
"title" : "Mapped Concordance vs. Read Length"
}
],
"tables" : [{
  "columns" : [{
    "header" : "Movie",
    "id" : "mapping_stats.mapping_stats_table.movie",
    "values" : ["All Movies", "m54012_160503_235448"]
  }, {
    "header" : "Mapped Reads",
    "id" : "mapping_stats.mapping_stats_table.mapped_reads",
    "values" :
      [298092, 298092]
  }, {
    "header" : "Mapped Polymerase Read Length",
    "id" : "mapping_stats.mapping_stats_table.mapped_polymerase_read_length",
    "values" : [4996, 4996]
  }, {
    "header" : "Mapped Polymerase Read Length N50",
    "id" : "mapping_stats.mapping_stats_table.mapped_polymerase_read_length_n50",
    "values" : [7967, 7967]
  }, {
    "header" : "Mapped Subreads",
    "id" : "mapping_stats.mapping_stats_table.mapped_subreads",
    "values" : [887868, 887868]
  }, {
    "header" : "Mapped Subread Bases",
    "id" : "mapping_stats.mapping_stats_table.mapped_subread_base",

```



```

      "values" : [1408496081, 1408496081]
    }, {
      "header" : "Mapped Subread Length",
      "id" : "mapping_stats.mapping_stats_table.mapped_subread_length",
      "values" : [1586, 1586]
    }, {
      "header" : "Mapped Subread Concordance",
      "id" : "mapping_stats.mapping_stats_table.mapped_subread_concordance",
      "values" : [0.8574, 0.8574]
    }
  ],
  "id" : "mapping_stats.mapping_stats_table",
  "title" : "Mapping Statistics Summary"
}
],
"title" : "Report mapping_stats",
"uuid" : "c1338f53-672f-4a4f-98f2-c3ef2a7d2e57"
}

```

Step 2b - fetch the variants report, which has UUID = 67cb8880-173c-4236-bb0d-2758f1985ccb:

```

{
  "_changelist" : "UNKNOWN",
  "_version" : "0.3.25",
  "attributes" : [{
    "id" : "variants.weighted_mean_concordance",
    "name" : "Reference Consensus Concordance (mean)",
    "value" : 1
  }, {
    "id" : "variants.mean_contig_length",
    "name" : "Reference Contig Length (mean)",
    "value" : 48502
  }, {
    "id" : "variants.longest_contig_name",
    "name" : "Longest Reference Contig",
    "value" : "lambda_NEB3011"
  }, {
    "id" : "variants.weighted_mean_bases_called",
    "name" : "Percent Reference Bases Called (mean)",
    "value" : 1
  }, {
    "id" : "variants.weighted_mean_coverage",
    "name" : "Reference Coverage (mean)",
    "value" : 27237.739206548184
  }
],
"dataset_uuids" : ["6b8db144-a601-4577-ab04-ba64cad0548"],
"id" : "variants",
"plotGroups" : [{
  "id" : "variants.variants_plots",
  "legend" : "variants_plot_legend.png",
  "plots" : [{
    "caption" : "Observed variants across lambda_NEB3011",
    "id" : "variants.variants_plots.coverage_variants_0",
    "image" : "variants_plot_935b383a75c999221678e79f2bafcf9c.png"
  }
]
},
"thumbnail" : "variants_plot_935b383a75c999221678e79f2bafcf9c_thumb.png",

```

```

    "title" : "Variants Across Reference"
  },
  ],
  "tables" : [{
    "columns" : [{
      "header" : "Reference",
      "id" : "variants.consensus_table.contig_name",
      "values" : ["lambda_NEB3011"]
    }, {
      "header" : "Reference Length",
      "id" : "variants.consensus_table.contig_len",
      "values" : [48502]
    }, {
      "header" : "Bases Called",
      "id" : "variants.consensus_table.bases_called",
      "values" : [1]
    }, {
      "header" : "Consensus Accuracy",
      "id" : "variants.consensus_table.concordance",
      "values" : [1]
    }, {
      "header" : "Base Coverage",
      "id" : "variants.consensus_table.coverage",
      "values" : [27237.739206548184]
    }
  ],
  "id" : "variants.consensus_table",
  "title" : "Consensus Calling Results"
}
],
"title" : "Report variants",
"uuid" : "67cb8880-173c-4236-bb0d-2758f1985ccb"
}

```

3.2.10 Fetch Job Events

Fetch events of a job identified by job type and job id.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/events">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/events

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeld	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset, import-datastore, merge-datasets, convert-rs-movie, convert-fasta-reference, pbsmrtpipe, export-datasets, delete-job, convert-fasta- barcodes
jobId	integer	Unique identifier of a job within its job type	Yes	No	8 34

Request Headers	Description	Required	Example
Accept	Content-Types that are acceptable for the	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch events of the job of type 'merge-datasets' with ID=252:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/merge-datasets/252/events>

Fetch events of the job of type 'convert-fasta-reference' with ID=4:

GET

<http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/convert-fasta-reference/4/events>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. Note: If there is no job corresponding to the jobId value passed in the request, then the response still will be 200 OK, with an empty array of events in the response body.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeld (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeld values, use the List All Job Types request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Mon, 08 Feb 2016 23:28:56 GMT
Content-Length	Length of the response body in octets	Yes	1139
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Fetch job events - response schema

Example Response

See [Fetch job events - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v3.0	New service endpoint.	N/A
SMRT Analysis v4.0	Added new job types: export-datasets, delete-job, convert-fasta-barcodes. No changes in response and response schema from previous release.	Yes.

Fetch job events - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.job.events",
  "version" : "0.1.0",
  "title" : "Job Events",
  "description" : "Array of job events",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "state" : {
        "title" : "Job State",
        "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED",
        "type" : "string"
      },
      "eventId" : {
        "title" : "Event Id",
        "description" : "UUID of the event",
        "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
      }
    }
  }
}
```

```

    },
    "jobId" : {
      "title" : "Job Id",
      "description" : "Identifier of the job that the event
        belongs to", "type" : "integer"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this event was
        created", "type" : "string",
      "format" : "date-time"
    },
    "message" : {
      "title" : "Message",
      "description" : "Message describing this event",
      "type" : "string"
    }
  },
  "required" : [
    "state",
    "eventId",
    "jobId",
    "createdAt",
    "message"
  ]
},
"additionalItems" : false
}

```

Fetch job events - response example

Example 1 - fetch events of the job of type 'merge-datasets' with ID=252:

```

[ {
  "state" : "CREATED",
  "eventId" : "fe5eeae7-dbcd-4e93-a55c-
1467b3a9b50d", "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:10.531-08:00",
  "message" : "Created job 252 type merge-datasets with 1576c753-478c-46c6-ad44-
9936665df1b7"
}, {
  "state" : "SUBMITTED",
  "eventId" : "362b2722-456c-4781-a953-
a4c5e8d5eca2", "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.010-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to SUBMITTED"
}, {
  "state" : "RUNNING",
  "eventId" : "b4d94bf5-bd00-4778-9e89-
1d73cf9d9336", "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.171-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to RUNNING"
}, {
  "state" : "RUNNING",
  "eventId" : "5516a6b9-3d72-4d04-bd14-
108e71ab217e", "jobId" : 252,
  "createdAt" : "2015-11-30T15:06:12.232-08:00",
  "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to RUNNING"
}, {
  "state" : "SUCCESSFUL",

```

```

    "eventId" : "7d2b03ab-2aa8-4488-ae5d-
    e3a2b4540485", "jobId" : 252,
    "createdAt" : "2015-11-30T15:06:12.556-08:00",
    "message" : "Updating job id 1576c753-478c-46c6-ad44-9936665df1b7 to SUCCESSFUL"
  }
]

```

Example 2 - fetch events of the job of type 'convert-fasta-reference' with ID=4:

```

[ {
  "state" : "CREATED",
  "eventId" : "d4ab8b0b-25c1-4e76-ae5d-
  2669afaf9ac2", "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:37.665-08:00",
  "message" : "Created job 4 type convert-fasta-reference with d0a65373-ac76-44c6-afbe-
  614bc15c6d0"
}, {
  "state" : "SUBMITTED",
  "eventId" : "9f040d25-2876-45dd-9438-44fe49ef1361",
  "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.107-08:00",
  "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to SUBMITTED"
}, {
  "state" : "RUNNING",
  "eventId" : "8c6ef1c7-055e-464d-84fc-
  e74db65fa518", "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.184-08:00",
  "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to RUNNING"
}, {
  "state" : "RUNNING",
  "eventId" : "6694db93-4092-41c4-97fb-
  da680753a86b", "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:39.275-08:00",
  "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to RUNNING"
}, {
  "state" : "SUCCESSFUL",
  "eventId" : "6ebb1934-b4cd-407f-af68-
  92be513a3d39", "jobId" : 4,
  "createdAt" : "2015-11-13T11:57:40.654-08:00",
  "message" : "Updating job id d0a65373-ac76-44c6-afbe-614bc15c6d0e to SUCCESSFUL"
}
]

```

3.2.11 Fetch Job Options

Fetch options of a job identified by job type and job id.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/options">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/options

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset, import-datastore, merge-datasets, convert-rs-movie, convert-fasta-reference, pbsmrtpipe, export-datasets, delete-job, convert-fasta-barcodes
jobid	integer	Unique identifier of a job within its job type.	Yes	No	8, 34

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	text/plain

Media Type	Request Body Representation / Schema
text/plain	Request schema is N/A, as this is GET request.

Example Request

Fetch options of the job of type 'merge-datasets' with ID=53:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/merge-datasets/53/options>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobId (non-existing job type) is passed in the request. Note: To get the list of valid jobId values, use the List All Job Types request.
404 Not Found	Unable to find JobId 52222	Occurs when an invalid value of jobId (non-existing job identifier within its job type) is passed in the request. Note: To get the list of valid jobId values, use the List All Jobs by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: text/plain; charset=UTF-8 text/plain	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/json

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 10 Feb 2017 01:11:56 GMT
Content-Length	Length of the response body in octets	Yes	305
Content-Type	MIME type of this content	Yes	text/plain; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
text/plain	See Fetch job options - response schema

Example Response

See [Fetch job options - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Fetch job options - response schema

Note: The schema presented below corresponds to the response presented in [Fetch job options - response example](#) and is specific to the job of type 'merge-datasets'. Responses and their respective response schemas for other job types may be different.


```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.options",
  "version" : "0.1.0",
  "title" : "Job Options Schema",
  "description" : "Job options schema",
  "type" : "object",
  "properties" : {
    "title" : {
      "name" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "datasetType" : {
      "title" : "Dataset Type",
      "description" : "Dataset type, e.g. PacBio.DataSet.SubreadSet",
      "type" : "string"
    },
    "paths" : {
      "title" : "Dataset Paths",
      "description" : "Array of dataset paths",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "string",
      },
      "additionalItems" : false
    }
  },
  "required" : [
    "name",
    "datasetType",
    "paths"
  ],
  "additionalProperties" : false
}
```

Fetch job options - response example

Fetch options of the job of type 'merge-datasets' with ID=53:

```
{
  "datasetType" : "PacBio.DataSet.SubreadSet",
  "paths" : [ "/pbi/collections/31/2745.subreadset.xml",
    "/pbi/collections/31/1512.subreadset.xml" ], "name" : "Auto-merged subreads @
1454026198403"
}
```

3.2.12 Fetch Job Entry Points

Fetch entry points of a job identified by job type and job id.

Note: Job type identifiers and descriptions are available in the response to the [List All Job Types](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/entry-points">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}/{jobId}/entry-points

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; list of all possible job types may be obtained through the List All Job Types request.	Yes	No	import-dataset import-datastore merge-datasets convert-rs-movie convert-fasta-reference pbsmrtpipe delete-job export-datasets convert-fasta-barcodes
jobId	integer	Unique identifier of a job within its job type	Yes	No	8, 34

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch entry points of the job of type 'pbsmrtpipe' with ID=3:

GET <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/pbsmrtpipe/3/entry-points>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
404 Not Found	The requested resource could not be found.	Occurs when an invalid value of jobTypeld (non-existing job type) is passed in the request. Note: To get the list of valid jobTypeld values, use the List All Job Types request.
404 Not Found	Unable to find Jobld 52222.	Occurs when an invalid value of jobld (non-existing job identifier within its job type) is passed in the request. Note: To get the list of valid jobld values, use the List All Jobs by Type request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 23 Feb 2017 19:30:26 GMT
Content-Length	Length of the response body in octets	Yes	121
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Fetch job entry points - response schema

Example Response

See [Fetch job entry points - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Fetch job entry points - response schema

Note: The schema presented below corresponds to the response presented in the [Fetch job entry points - response example](#) and is specific to the job of type 'pbsmrtpipe'. Responses and their respective response schemas for other job types may be different.

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.entry-points",
  "version" : "0.1.0",
  "title" : "Job Entry Points",
  "description" : "Array of job entry points",
  "type" : "array",
```

```

"minItems" : 1,
"items" : {
  "type" :
  "object",
  "properties"
: {
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the
job", "type" : "integer"
  },
  "datasetUUID" : {
    "title" : "Dataset UUID",
    "description" : "UUID of the
dataset", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
  },
  "datasetType" : {
    "title" : "Dataset Type",
    "description" : "Dataset type, e.g.
PacBio.DataSet.SubreadSet", "type" : "string"
  }
},
"required" : [
  "jobId",
  "datasetUU
ID",
  "datasetTy
pe"
]
},
"additionalItems" : false
}

```

Fetch job entry points - response example

Fetch entry points of the job of type 'pbsmrtpipe' with ID=3:

```

[ {
  "jobId" : 3,
  "datasetUUID" : "0854e374-324b-9ed1-0502-053c1c1d2d86",
  "datasetType" : "PacBio.DataSet.SubreadSet"
}
]

```

3.2.13 Delete Job

Delete a services job and remove files.

Note: To delete a job, you must create another job of type "delete-job", and pass the UUID of the job to delete in the request body.

Note: Deleting a job must be performed in two steps:

1. Make sure that it is safe to delete the job, in the sense that there is no other piece of data dependent on the job being deleted.
2. If the job can be safely deleted, proceed with the actual deleting of the job.

Request

Method	URL
POST	<a href="http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}">http://<host>:<port>/secondary-analysis/job-manager/jobs/{jobTypeId}

Note: Job type identifier must be set to 'delete-job' type.

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
jobTypeId	string	Job type/category; to delete a job, this parameter must be set to 'delete-job' type.	Yes	No	delete-job

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	See Delete job - request schema

Note: The request body for the POST request to create a job of type "delete-job" is a JSON object with the following fields:

- jobId: The UUID of the job to be deleted
- removeFiles: A boolean flag specifying whether to remove files associated with the job being deleted
- dryRun: A boolean flag allowing to check whether it is safe to delete the job prior to actually deleting it

Example Request

See [Delete job - request example](#)

Response

HTTP Status Code	Error Message	Description
201 Created	None	Request was completed successfully. This request creates a job that will delete the job whose jobId is specified in the request body.
400 Bad Request	The request content was incorrect: Unexpected character 'j' at input index 4 , expected "'': ?jobId"	Occurs when the " is missing in "jobId" element name in the request body.
404 Not Found	Unable to find job 1c7acbafe2bbd-45c4-8329-fd9707c2cd1b	Occurs when an invalid value of jobId (non-existing job identifier) was passed in the request body.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Unsupported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 02 Feb 2017 22:27:25 GMT
Content-Length	Length of the response body in octets	Yes	679
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Delete job - response schema

Example Response

See [Delete job - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Delete job - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.delete",
  "version" : "0.1.0",
  "title" : "Delete Job Request",
  "description" : "Schema of request body for deleting a job",
  "type" : "object",
  "properties" : {
    "jobId" : {
      "title" : "Job Id",
      "description" : "UUID of the job to be deleted",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "removeFiles" : {
      "title" : "Remove Files",
      "description" : "Flag specifying whether to remove files associated with the job being deleted",
      "type" : "boolean"
    },
    "dryRun" : {
      "title" : "Dry Run",
      "description" : "'true' - check if it is safe to delete the job; 'false' - actually delete it",
      "type" : "boolean"
    }
  }
}
```

```

"required" : [
  "jobId",

  "removeFiles",
  "dryRun"
],
"additionalProperties" : false
}

```

Delete job - request example

Step 1 - check if it is safe to delete the job with job UUID = 13957a79-1bbb-44ea-83f3-6c0595bf0d42; create a job of type "delete-job" with the request body which has "dryRun" = 'true':

POST <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/delete-job>

```

{
  "jobId" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42",
  "removeFiles" : true,
  "dryRun" : true
}

```

Step 2 - if the previous step succeeded, i.e. the job can be safely deleted, then proceed with the actual deleting of the job;

create a job of type "delete-job" with the request body which has "dryRun" = 'false':

POST <http://SMRTLinkServername.domain:8081/secondary-analysis/job-manager/jobs/delete-job>

```

{
  "jobId" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42",
  "removeFiles" : true,
  "dryRun" : false
}

```

Delete job - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.job.object",
  "version" : "0.1.0",
  "title" : "Job Object",
  "description" : "Job object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Job Name",
      "description" : "Name of this job",
      "type" : "string"
    },
    "jobTypeId" : {
      "title" : "Job Type Id",
      "description" : "Type identifier of this job",
      "type" : "string"
    },
    "id" : {
      "title" : "Job Id",
      "description" : "Identifier of this job",
      "type" : "integer"
    },
    "uuid" : {
      "title" : "UUID",
      "description" : "UUID of this job",
      "type" : "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this job was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this job was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "path" : {
      "title" : "Job path",
      "description" : "Path to the job folder",
      "type" : "string",
      "format" : "uri"
    },
    "state" : {
      "title" : "Job State",
      "description" : "Job state (CREATED, SUBMITTED, RUNNING, SUCCESSFUL, FAILED, KILLED, STOPPED)",
      "type" : "string"
    },
    "comment" : {
      "title" : "Comment",
      "description" : "Comment describing

```



```

    this job", "type" : "string"
  },
  "smrtlinkVersion" : {
    "title" : "Smrtlink Version",
    "description" : "Smrtlink version associated with
    this job", "type" : "string"
  },
  "smrtlinkToolsVersion" : {
    "title" : "Smrtlink Tools Version",
    "description" : "Smrtlink tools version associated with
    this job", "type" : "string"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Flag specifying whether this job is
    active", "type" : "boolean"
  },
  "createdBy" : {
    "title" : "Created By",
    "description" : "Login name of the user who created
    this job", "type" : "string"
  },
  "jsonSettings" : {
    "title" : "JSON Settings",
    "description" : "Serialized JSON file that contains settings for this
    job", "type" : "string"
  }
},
"required" : [
  "name",
  "jobTypeId",
  "id",
  "uuid",
  "createdAt",
  "updatedAt",
  "path",
  "state",
  "comment",
  "smrtlinkVersion",
  "smrtlinkToolsVersion",
  "isActive",
  "createdBy",
  "jsonSettings"
],
"additionalProperties" : false
}

```

Delete job - response example

Step 1 - check if it is safe to delete the job with job UUID = 13957a79-1bbb-44ea-83f3-6c0595bf0d42; the response body contains the job object of the job that is being deleted:

```

{
  "name" : "Job merge-datasets",
  "updatedAt" : "2016-01-
  29T00:09:58.462Z",
  "path" :
  "/pbi/smrtsuite_170220/userdata/jobs_root/000/000053",

```

```

"state" : "FAILED",
"uuid" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42", "smrtlinkToolsVersion" :
null,
"jobTypeId" : "merge-
datasets", "id" : 53,
"smrtlinkVersion" :
null, "comment" :
"Merging Datasets",
"createdAt" : "2016-01-29T00:09:58.462Z",
"isActive" :
true,
"createdBy"
: null,
"jsonSettings" :
"{\"paths\":[\"/pbi/745.subreadset.xml\", \"/pbi/787.subreadset.xml\"], \"name\":"
}

```

Step 2 - if the previous step succeeded, i.e. the job can be safely deleted, then proceed with the actual deleting of the job; the response body contains the job object of the newly created job of type “delete-job”:

```

{
  "name" : "Job delete-job",
  "updatedAt" : "2017-03-09T11:51:38.828-08:00",
  "path" : "/pbi/smrtsuite_170220/userdata/jobs_root/007/007666",
  "state" : "CREATED",
  "uuid" : "1f60c976-e426-43b5-8ced-f8139de6ceff",
  "smrtlinkToolsVersion" : null,

  "jobTypeId" :
  "delete-job", "id"
  : 7666,
  "smrtlinkVersion" : "4.0.0.190159",
  "comment" : "Deleting job 13957a79-1bbb-44ea-83f3-6c0595bf0d42", "createdAt" : "2017-03-09T11:51:38.828-08:00",
  "isActive"
  : true,
  "createdBy"
  : null,
  "jsonSettings" : "{\"jobId\":\"13957a79-1bbb-44ea-83f3-6c0595bf0d42\", \"removeFiles\":true, \"dryRu
}

```

3.3 Project Service

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3.3.1 Overview of Project Service

Use Cases

The Project Service enables creating, viewing, editing, and deleting projects.

Key Concepts

The **Project** entity mediates all access control to Datasets and Analysis Jobs.

To access a particular Dataset or Analysis Job, a user must belong to that particular Project or be an administrator.

- SMRT Link and SMRT Analysis always include at least **one** project: the **General** project.
- **All** data is associated with the General project, unless the user has created a different project and has specified that the data is associated with that different project.

A **Project** is defined as a set of:

- One or more *Datasets*, *Analysis Jobs*, and *Quality Control* information;
- One or more *Analysis results*, including information for all analysis parameters and their values, and reference sequence - if used;
- Meta Data: Project *description*, Project *owner(s)*, and Project *members*.

Projects and Users

Projects have one or more owners. Project owner can share the Project with other SMRT Link users.

By default, the user who creates the project is the **Project Owner**, and the only user who has initial access to that project. Users can have access to multiple projects.

Projects and Datasets

- Once created, a Dataset always belongs to a project - either the General project or can be included in one or many other projects.
- A user can view all Datasets in all of their projects at once.
- Examples and Runs are not contained in projects. However, Runs do specify a single project as the destination for their sequence data.

Project States

Project States list:

- **CREATED:** Project has been created
- **ACTIVE:** Project is currently active

Endpoint-to-User-Role Mapping: Project Service API

The following table defines which Project Service API endpoints can be accessed by each SMRT Link User Role:

Endpoint	User Role(s)
List All Projects	Admin, Lab Tech, Bioinformatician
Create Project	Admin, Lab Tech, Bioinformatician
Fetch Project by Id	Admin, Lab Tech, Bioinformatician
Update Project Datasets	Admin, Lab Tech, Bioinformatician
Update Project Members	Admin, Lab Tech, Bioinformatician
Delete Project	Admin, Lab Tech, Bioinformatician

Note: For details on the user authentication mechanism and User Roles, see the *Authentication* section in the [Introduction](#) chapter.

3.3.2 Authentication for Project Service API

The Project Service API endpoints require authentication; they are accessed through the WSO2 API Manager software, which acts as a proxy and runs on port 8243.

To obtain a WSO2 authentication token, perform the following steps:

Step 1 - get consumerKey and consumerSecret

Get an app_config.json file which contains *consumerKey* and *consumerSecret* for SMRT Link. This file was created during a one-time configuration of SMRT Link with WSO2.

Use the following command:

```
curl http://SMRTLinkServername.domain:8080/app-config.json
```

Example of the response:

```
{
  "translations" : {
    "basePath" : "app/translations",
    "supportedLanguages" : [{
      "languageCode" : "es",
      "defaultCountryCode" : "es"
    }, {
      "languageCode" : "en",
      "defaultCountryCode" : "us",
      "isFallbackLanguage" : true
    }
  ],
  "isInternalModeEnabled" : false,
  "isReuseExampleEnabled" : false,
  "isDevModeEnabled" : false,
  "fileImportPath" : "/",
  "silos" : [
    "welcome",
    "example-setup", "run-design",
    "run-qc",
    "data-management",
    "analysis"
  ],
  "importRunMovieMinutesLimit" : 600,
  "extensionTimeMinutesMaxLimit" : 240,
  "extensionTimeMinutesMinLimit" : 20,
  "constraintsProvider" : "pacbio",
  "consumerKey" : "KMLz5g7fbmx8RVFKKdu0NOrJic4a",
}
```

The response contains the following elements:

- *consumerKey*: a key identifier auto-generated during a one-time configuration of SMRT Link with WSO2, which is used as username with HTTP Basic Authentication in a request to the WSO2 /token endpoint
- *consumerSecret*: a secret identifier auto-generated during a one-time configuration of SMRT Link with WSO2, which is used as password with HTTP Basic Authentication in a request to the WSO2 /token endpoint

Step 2 - obtain a WSO2 authentication token

From the response received in Step 1, use the *consumerKey* and *consumerSecret* as the username and password with HTTP Basic Authentication in a request to the WSO2 /token endpoint.

To authenticate and get a token, make a POST request to /token on port 8243 with the following parameters (passed as x-www-form-urlencoded key/value pairs in POST body):

- *grant_type=password*
- *username=<username>* (where <username> is the network login name of a user defined in LDAP and configured with one of the roles - Admin, Lab Tech, or Bioinformatician)
- *password=<password>* (where <password> is the network password of the above user)
- *scope=data-management* (this is WSO2 scope defined for Project Service API endpoints)

Use the following command:

```
curl -sk -user <consumerKey>:<consumerSecret> -d
"grant_type=password&username=<username>&password=<password>&scope=data-
management" https://smrtlink-alpha.nanofluidics.com:8243/token
```

For example:

```
curl -sk -user KMLz5g7fbmx8RVFKKdu0NOrJic4a:6NjRXBcFfLZOwHc0Xlidiz4ywcsa -d
"grant_type=password&username=smrtlinktest&password=qwerty123&scope=data-
management" https://smrtlink-alpha.nanofluidics.com:8243/token
```

Example of the response:

```
{
  "access_token" : "22d3a99c-f5e2-3542-848d-5cda5e22dca0",
  "refresh_token" : "f6f08f52-cc13-3bef-83c9-63663d23b5be",
  "scope" : "data-management",
  "token_type" : "Bearer",
  "expires_in" : 3600
}
```

The response contains the following elements:

- *access_token*: token to be supplied in the 'Authorization: Bearer' header in subsequent requests
- *refresh_token*: when *access_token* expires, the client can use the *refresh_token* to get a new *access_token* (see Step 4 below for more details.)
- *expires_in*: seconds until the *access_token* expires (the default is 3600 seconds, i.e. 1 hour)

Step 3 - use the WSO2 authentication token in calls to API endpoints

From the response received in Step 2, use the *access_token* in the 'Authorization: Bearer <token>' HTTP header to make requests.

To make authenticated requests to the Project Service API endpoints, start the URL with 'https', use the 'SMRTLink/1.0.0' URL prefix, and make the request to port 8243.

For example, to get the list of all projects, use the following command:

```
curl -k -H "Authorization: Bearer <access_token>"
https://smrtlink-alpha.nanofluidics.com:8243/SMRTLink/1.0.0/secondary-analysis/projects
```

For example:

```
curl -k -H "Authorization: Bearer 22d3a99c-f5e2-3542-848d-5cda5e22dca"
https://smrtlink-alpha.nanofluidics.com:8243/SMRTLink/1.0.0/secondary-
analysis/projects
```

To call the Project Service API endpoints from a REST client (rather than from the 'curl' command line tool), use the URL and request headers as in the example below:

```
GET https://smrtlink-alpha.nanofluidics.com:8243/SMRTLink/1.0.0/secondary-
analysis/projects Accept: application/json
Authorization: Bearer 22d3a99c-f5e2-3542-848d-5cda5e22dca0
```

Example of the response:

```
[{
  "name" : "General Project",
  "updatedAt" : "2016-04-21T18:14:52.106Z",
  "state" : "CREATED",
  "description" : "General Project",
  "id" : 1,
  "createdAt" : "2016-04-21T18:14:52.106Z",
  "isActive" : true
}, {
  "name" : "JWTTestProject",
  "updatedAt" : "2016-12-14T21:58:45.776Z",
  "state" : "CREATED",
  "description" : "testing",
  "id" : 2,
  "createdAt" : "2016-12-14T21:58:45.776Z",
  "isActive" : true
}, {
  "name" : "Test Project",
  "updatedAt" : "2017-02-14T19:39:09.755Z",
  "state" : "ACTIVE",
  "description" : "My First Test Project",
  "id" : 3,
  "createdAt" : "2017-02-03T03:01:53.044Z",
  "isActive" : true
}]
```

Step 4 - refresh the WSO2 authentication token

To get a new *access_token* (while the *refresh_token* is still valid), use the 'refresh_token' grant type and supply the *refresh_token* received from the original request in a new request to the WSO2 /token endpoint. Use the same HTTP Basic authentication with the *consumerKey* and *consumerSecret*, and make a new POST request to /token on port 8243 with the following parameters (passed as x-www-form-urlencoded key/value pairs in POST body):

- *grant_type=refresh_token*
- *refresh_token=<refresh_token>* (value of *refresh_token* received from the original /token request)
- *scope=data-management*

Use the following command:

```
curl -sk -user <consumerKey>:<consumerSecret> -d
"grant_type=refresh_token&refresh_token=<refresh_token>&scope=data-
management" https://smrtlink-alpha.nanofluidics.com:8243/token
```

For example:

```
curl -sk -user KMLz5g7fbmx8RVFKKdu0NOrJic4a:6NjRXBcFfLZOwHc0Xlidiz4ywcsa -d
"grant_type=refresh_token&refresh_token=f6f08f52-cc13-3bef-83c9-
63663d23b5be&scope=data- management"
https://smrtlink-alpha.nanofluidics.com:8243/token
```

Example of the response:

```
{
  "access_token" : "236772f2-40da-392a-8fba-0de94072c052",
  "refresh_token" : "a31b5f3a-5ad5-37ad-bae9-2300e8e642a2",
  "scope" : "data-management",
  "token_type" : "Bearer",
  "expires in" : 3600
}
```

3.3.3 List All Projects

Get the list of all projects available on the system.

Request

Method	URL
GET	<a href="http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects">http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Authorization	Authentication credentials for WSO2 authentication. The value is taken from “access_token” returned by the WSO2 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e- 8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of all projects available on the system:

GET <http://SMRTLinkServername.domain:8243/SMRTLink/1.0.0/secondary-analysis/projects>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.
401 Unauthorized	The supplied authentication is invalid	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

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Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 22 Jul 2016 23:16:23 GMT
Content-Length	Length of the response body in octets	Yes	379
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See List all projects - response schema

Example Response

See [List all projects - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For details on how to obtain the authentication see token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	Changed response and response schema: added field isActive. Changed authentication mechanism to WSO2.	No

List all projects - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.projects.list",
  "version" : "0.1.0",
  "title" : "Projects List",
  "description" : "Array of Project objects",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" : "object",
    "properties" : {
      "name" : {
        "title" : "Project Name",
        "description" : "Name of this project",
        "type" : "string"
      },
      "id" : {
        "title" : "Project Id",
        "description" : "Identifier of this project",
        "type" : "integer"
      },
      "description" : {
        "title" : "Project Description",
        "description" : "Description of this project",
        "type" : "string"
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this project was created",
        "type" : "string",
        "format" : "date-time"
      },
      "updatedAt" : {
        "title" : "Updated at",
        "description" : "Time when this project was updated",
        "type" : "string",
        "format" : "date-time"
      },
      "state" : {
        "title" : "Project State",
        "description" : "Project state (CREATED, ACTIVE)",

```

```

    "type" : "string"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Flag specifying whether this project is active",
    "type" : "boolean"
  },
},
"required" : [
  "name",
  "id",
  "description",
  "createdAt",
  "updatedAt",
  "state",
  "isActive"
]
},
}

```

List all projects - response example

```

[ {
  "name" : "General Project",
  "updatedAt" : "2016-04-28T23:32:09.576Z",
  "state" : "CREATED",
  "description" : "General Project",
  "id" : 1,
  "createdAt" : "2016-04-28T23:32:09.576Z",
  "isActive": true
}, {
  "name" : "Test Project",
  "updatedAt" : "2016-07-22T23:09:07.426Z",
  "state" : "ACTIVE",
  "description" : "My First Test Project",
  "id" : 2,
  "createdAt" : "2016-07-22T18:33:54.666Z",
  "isActive": true
}
]

```

3.3.4 Create Project

Create a new project.

Request

Method	URL
POST	<a href="http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects">http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Authorization	Authentication credentials for WSO2 authentication. The value is taken from “access_token” returned by the WSO2 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e- 8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	See Create project - request schema

Example Request

See [Create project - request example](#)

Response

HTTP Status Code	Error Message	Description
201 Created	None	Request was completed successfully. The newly-created project object will be returned in the response body.
400 Bad Request	The request content was incorrect: deserialising ProjectRequest: missing description, found name”	Occurs when a required field (“description”, in the example) was missing in the request body.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.
401 Unauthorized	The supplied authentication is invalid	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Unsupported Media Type	There was a problem with the request’s Content-Type: Expected ‘application/json’	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 04 Aug 2016 23:59:02 GMT
Content-Length	Length of the response body in octets	Yes	407
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Create project - response schema

Example Response

See [Create project - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For detail how to obtain the authentication token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	Request body (payload) schema is the same. Changed response and response schema: added field isActive, removed some fields from elements of "members" array. Changed authentication mechanism to WSO2.	No

Create project - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.project.new",
  "version" : "0.1.0",
  "title" : "New Project",
  "description" : "A subset of Project object required to create a new project",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    }
  },
  "required" : [
    "name",
    "description"
  ],
  "additionalProperties" : false
}
```

Note: The structure of the POST request body for creating a project may be the same as the full project structure (see [Create project - response schema](#)), but many of the fields are optional. Only “name” and “description” are required fields. The full project structure is allowed in the POST request body.

Create project - request example

Create a project:

POST <http://SMRTLLinkServername.domain:8243/SMRTLLink/1.0.0/secondary-analysis/projects>

```
{
  "name" : "Test Project",
  "description" : "My First Test Project"
}
```

Note: The value of the “name” field passed in the request body does not have to be unique. If a project object with the same “name” already exists, the new project object still will be created successfully, with a new “id” allocated for it by the server.

Create project - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#", "id" :
  "pachio.secondary.schemas.project.object", "version" :
  "0.1.0",
  "title" : "Project Object", "description" :
  "Project object schema", "type" : "object",
  "properties" : { "name" :
    {
      "title" : "Project Name",
      "description" : "Name of this project", "type"
      : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project", "type"
      : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created", "type" :
      "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated", "type" :
      "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)", "type"
      : "string"
    },
    "isActive" : {
      "title" : "Is Active",
      "description" : "Flag specifying whether this project is active",
      "type" : "boolean"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project", "type" :
      "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "id" : {
            "title" : "Dataset Id",
            "description" : "Identifier of this dataset",
            "type" :
            "integer",
            "minimum" : 0

```

```

},
"uuid" : {
  "title" : "Dataset UUID",
  "description" : "UUID of this
dataset", "type" : "string",
  "format" : "uuid",
  "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}
},
"name" : {
  "title" : "Dataset Name",
  "description" : "Display name of this
dataset", "type" : "string",
  "minLength" : 1
},
"version" : {
  "title" : "Version",
  "description" : "Version of this
dataset", "type" : "string",
  "format" :
  "sem-ver",
  "minLength" : 5
},
"createdAt" : {
  "title" : "Created at",
  "description" : "Time when this dataset was
created", "type" : "string",
  "format" : "date-time"
},
"updatedAt" : {
  "title" : "Updated at",
  "description" : "Time when this dataset was
updated", "type" : "string",
  "format" : "date-time"
},
"projectId" : {
  "title" : "Project Id",
  "description" : "Identifier of the project that this dataset belongs
to", "type" : "integer",
  "minimum" : 0
},
"jobId" : {
  "title" : "Job Id",
  "description" : "Identifier of the job that generated this
dataset", "type" : "integer",
  "minimum" : 0
},
"userId" : {
  "title" : "User Id",
  "description" : "Identifier of the user who imported this
dataset", "type" : "integer",
  "minimum" : 0
},
"path" : {
  "title" : "Dataset Path",
  "description" : "Path to this
dataset", "type" : "string",
  "format" : "uri"
},
"tags" : {
  "title" : "Dataset Tags",

```



```

    "description" : "Tags assigned to this dataset upon creation.", "type" :
    "array",
    "items" : {
        "type" : "string"
    },
    "uniqueItems" : true
},
"numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset", "type"
    : "integer",
    "minimum" : 0
},
"totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset", "type" :
    "integer",
    "minimum" : 0
},
"md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset", "type" :
    "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
},
"isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active", "type"
    : "boolean"
},
"comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
}
},
"required" : [
    "id",
    "uuid",
    "name", "version",
    "createdAt",
    "updatedAt",
    "projectId",
    "jobId",
    "userId",
    "path",
    "tags",
    "numRecords",
    "totalLength",
    "md5", "isActive",
    "comments"
],
    "additionalProperties" : false
},
    "additionalItems" : false
},
"members" : {
    "title" : "Members Array",
    "description" : "Array of the members that belong to this project",
    "type" : "array",

```

```

    "minItems" : 1,
    "items" : {
      "type" : "object",
      "properties" : {
        "login" : {
          "title" : "User Login",

          "description" : "Login name of this user",
          "type" : "string"
        },
        "role" : {
          "title" : "Member Role",
          "description" : "Member role in the project, one of: OWNER, CAN_EDIT, CAN_VIEW",
          "type" : "string"
        }
      },
      "required" : [
        "login",
        "role"
      ],
      "additionalProperties" : false
    },
    "additionalItems" : false
  }
},
"required" : [
  "name",
  "id",
  "description",
  "createdAt",
  "updatedAt",
  "state",
  "isActive",
  "datasets",
  "members"
],
"additionalProperties" : false
}

```

Create project - response example

```

{
  "name" : "Test Project",
  "updatedAt" : "2016-08-04T23:59:02.622Z",
  "state" : "CREATED",
  "description" : "My First Test Project",
  "datasets" : [],
  "id" : 2,
  "createdAt" : "2016-08-04T23:59:02.622Z",
  "isActive" : true,
  "members" : [{
    "login" : "jdoe",
    "role" : "OWNER"
  }]
}

```

3.3.5 Fetch Project by Id

Fetch the project object identified by its Id.

Note: Valid project Id values can be found in “id” fields of objects returned by the [List All Projects](#) request.

Request

Method	URL
GET	<a href="http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects/{id}">http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects/{id}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
id	integer	Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by the List All Projects request.	Yes	No	1, 43

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Authorization	Authentication credentials for WSO2 authentication. The value is taken from “access_token” returned by the WS02 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e- 8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Fetch the project object with Id = 1:

GET <http://SMRTLinkServername.domain:8243/SMRTLink/1.0.0/secondary-analysis/projects/1>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.
401 Unauthorized	The supplied authentication is invalid.	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.

Sequel SMRT Link Web Services API v4.0.0

404 Not Found	Unable to find project 11	Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use the List All Projects request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Wed, 03 Aug 2016 16:35:21 GMT
Content-Length	Length of the response body in octets	Yes	141528
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Fetch project by id - response schema

Example Response

See [Fetch project by id - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For detail how to obtain the authentication token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	Changed response and response schema: added field isActive, removed some fields from elements of "members" array. Changed authentication mechanism to WSO2.	No

Fetch project by ID - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)",
      "type" : "string"
    },
    "isActive" : {
      "title" : "Is Active",
      "description" : "Flag specifying whether this project is active",
      "type" : "boolean"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "id" : {
            "title" : "Dataset Id",
            "description" : "Identifier of this

```

```

    dataset", "type" : "integer",
    "minimum" : 0
  },

  "uuid" : {
    "title" : "Dataset UUID",
    "description" : "UUID of this
dataset", "type" : "string",
    "format" : "uuid",
    "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-
F0-9]{12}
  },
  "name" : {
    "title" : "Dataset Name",
    "description" : "Display name of this
dataset", "type" : "string",
    "minLength" : 1
  },
  "version" : {
    "title" : "Version",
    "description" : "Version of this
dataset", "type" : "string",
    "format" :
    "sem-ver",
    "minLength" : 5
  },
  "createdAt" : {
    "title" : "Created at",
    "description" : "Time when this dataset was
created", "type" : "string",
    "format" : "date-time"
  },
  "updatedAt" : {
    "title" : "Updated at",
    "description" : "Time when this dataset was updated",
    "type" : "string", "format"
    : "date-time"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Identifier of the project that this dataset belongs to", "type"
    : "integer",
    "minimum" : 0
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that generated this dataset", "type"
    : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "Identifier of the user who imported this dataset",
    "type" : "integer",
    "minimum" : 0
  },

  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset", "type"
    : "string",

```

```

    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.", "type" :

    "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset", "type"
    : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset", "type" :
    "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset", "type" :
    "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Boolean flag specifying whether this dataset is active",
    "type" : "boolean"
  },
  "comments" : {
    "title" : "Comments",
    "description" : "User description and comments about this dataset",
    "type" : "string"
  }
},
"required" : [
  "id",
  "uuid",
  "name",
  "version",
  "createdAt",
  "updatedAt",
  "projectId",
  "jobId",
  "userId",
  "path",
  "tags",
  "numRecords",

  "totalLength",
  "md5",
  "isActive",
  "comments"
],

```

```

        "additionalProperties" : false
    },
    "additionalItems" : false
},
"members" : {
    "title" : "Members Array",
    "description" : "Array of the members that belong to this project",
    "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" : "object",

        "properties" : {
            "login" : {
                "title" : "User Login",
                "description" : "Login name of this user",
                "type" : "string"
            },
            "role" : {
                "title" : "Member Role",
                "description" : "Member role in the project, one of: OWNER, CAN_EDIT, CAN_VIEW",
                "type" : "string"
            }
        },
        "required" : [
            "login",
            "role"
        ],
        "additionalProperties" : false
    },
    "additionalItems" : false
}
},
"required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state",
    "isActive",
    "datasets",
    "members"
],
"additionalProperties" : false
}

```


Fetch project by ID - response example

```
{
  "name" : "General Project",
  "updatedAt" : "2016-08-03T15:03:58.621Z",
  "state" : "CREATED",
  "description" : "General Project",
  "datasets" : [{
    "name" : "lambdaNEB",
    "updatedAt" : "2016-08-03T15:05:22.672Z",
    "path" :
      "/pbi/dept/secondary/smrtsuite_183872/referenceset/lambdaNEB/referenceset.xml",
    "tags" : "",
    "uuid" : "1a369917-507e-4f70-9f38-69614ff828b6",
    "totalLength" : 48502,
    "projectId" : 1,
    "numRecords" : 1,
    "version" : "3.0.1",
    "id" : 1,
    "md5" : "4861bca63e02aa26c92724febb3299c2",
    "jobId" : 1,
    "createdAt" : "2016-08-03T15:05:22.672Z",
    "isActive" :
      true, "userId" :
      1,
    "comments" : "reference dataset comments"
  }, {
    "name" : "pacbio_barcode_96",
    "updatedAt" : "2016-08-03T15:05:40.323Z",
    "path" :
      "/pbi/dept/secondary/smrtsuite_183872/barcodes/pacbio_barcode_96/barcodeset.xml",
    "tags" : "",
    "uuid" : "e72583fc-3fc6-caa5-5e62-01df662128e8",
    "totalLength" : 1536,
    "projectId" : 1,
    "numRecords" : 96,
    "version" : "3.0.1",
    "id" : 3,
    "md5" : "bc6701b507bb6818a753381f83737995",
    "jobId" : 3,
    "createdAt" : "2016-08-03T15:05:40.323Z",
    "isActive" :
      true, "userId" :
      1,
    "comments" : "Barcode imported"
  }, {
    "name" : "Convert-movie",
    "updatedAt" : "2016-08-03T15:06:30.358Z",
    "path" : "/pbi/dept/secondary/siv/2530923/m140906_c10067_s1_p0.hdfsubreadset.xml",
    "tags" : "pacbio.secondary.instrument=RS",
    "uuid" : "abf54d44-19a6-48d2-b2d2-dfdedf09de77",
    "totalLength" : 50000000,
    "projectId" : 1,

    "numRecords" : 150000,
    "version" : "3.0.1",
    "id" : 8,
    "md5" : "88cc1a85eecf3772abd9bb2ec5299993",
```

```

    "jobId" : 8,
    "createdAt" : "2016-08-03T15:06:30.358Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : ""
  }, {
    "name" : "ecoli_k12_MG1655",
    "updatedAt" : "2016-08-03T15:07:47.636Z",
    "path" : "/pbi/dept/secondary/siv/ecoli_k12_MG1655/ecoli_k12_MG1655.referenceset.xml",
    "tags" : "",
    "uuid" : "e2dfa44b-8ce1-46e3-9046-7622b926d595",
    "totalLength" : 4639675,
    "projectId" : 1,
    "numRecords" : 1,
    "version" : "0.3.0",
    "id" : 41,
    "md5" : "d6ffff25c6db968c68fbaac1cb2ae3d9d",
    "jobId" : 41,
    "createdAt" : "2016-08-03T15:07:47.636Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }, {
    "name" : "Fluidigm_EGFR_600bp_ampliconOnly",
    "updatedAt" : "2016-08-03T15:08:00.120Z",
    "path" : "/pbi/dept/secondary/siv/Fluidigm_EGFR_600bp_ampliconOnly.referenceset.xml",
    "tags" : "",
    "uuid" : "9cd24a8e-efd4-47e8-b03d-1a46e7698368",
    "totalLength" : 25309,
    "projectId" : 1,

    "numRecords" : 49,
    "version" : "0.3.0",
    "id" : 46,
    "md5" : "4ce950a801bb782de18d796aa4c82af3",
    "jobId" : 46,
    "createdAt" : "2016-08-03T15:08:00.120Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }, {
    "name" : "pacbio_dataset_alignmentset-160803_160641242",
    "updatedAt" : "2016-08-03T16:07:26.416Z",
    "path" : "/pbi/dept/secondary/smrtsuite_183872/0214/combined.alignmentset.xml",
    "tags" : "",
    "uuid" : "6b4bad36-f323-2015-686c-aabf600b06fe",
    "totalLength" : 9954,
    "projectId" : 1,

```

```

    "numRecords" : 1,
    "version" : "3.0.1",
    "id" : 231,
    "md5" : "f9344e0dfd5c9c4f93d93b03eda9708e",
    "jobId" : 214,
    "createdAt" : "2016-08-03T16:07:26.416Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "alignment dataset converted"
  }
],
  "id" : 1,
  "createdAt" : "2016-08-03T15:03:58.621Z",
  "isActive" : true,
  "members" : [{
    "login" : "jdoe",
    "role" : "OWNER"
  }, {
    "login" : "tcruise",
    "role" : "CAN_EDIT"
  }]
}

```

3.3.6 Update Project Datasets

Add a dataset to a project identified by its ID.

Note: Valid project ID values can be found in “id” fields of objects returned by the [List All Projects](#) request.

Request

Method	URL
PUT	<a href="http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects/{id}">http://<host>:<port>/SMRTLink/1.0.0/secondary-analysis/projects/{id}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
id	integer	Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by the List All Projects request.	Yes	No	2, 17

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Autho- rization	Authentication credentials for WSO2 authentication. The value is taken from “access_token” returned by the WSO2 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e- 8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	See Update project datasets - request schema

Example Request

See [Update project datasets - request example](#)

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. The updated project object will be returned in the response body.
400 Bad Request	The request content was incorrect: deserialising ProjectRequest: missing description, found name"	Occurs when a required field ("description", in the example) was missing in the request body.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.
401 Unauthorized	The supplied authentication is invalid	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.
404 Not Found	Unable to find project 3	Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use the List All Projects request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Unsupported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 05 Aug 2016 21:56:39 GMT
Content-Length	Length of the response body in octets	Yes	926
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Update project datasets - response schema

Example Response

See [Update project datasets - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For detail how to obtain the authentication token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	<p>Request body (payload) schema is the same.</p> <p>Changed response and response schema:</p> <p>added field isActive, removed some fields from elements of "members" array.</p> <p>Changed authentication mechanism to WSO2.</p>	No

Update project datasets - request schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pachio.secondary.schemas.project.update.datasets",
  "version" : "0.1.0",
  "title" : "Project Datasets Update",
  "description" : "A subset of Project object intended for updating a project with datasets",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "datasets" : {
      "title" : "Datasets Array",
      "description" : "Array of the datasets that belong to this project",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "id" : {
            "title" : "Dataset Id",
```

```
    "description" : "Identifier of this dataset",
    "type" : "integer",
    "minimum" : 0
  }
},
"required" : [
  "id"
],
"additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
  "name",
  "description",
  "datasets"
],
"additionalProperties" : false
}
```

Note: The structure of the PUT request body for updating a project may be the same as the full project structure (see [Update project datasets - response schema](#)), but many of the fields are optional. Only “name”, “description”, and “datasets” array are required fields for adding a dataset to a project.

Update project datasets - request example

Add a dataset to a project:

PUT <http://SMRTLinkServername.domain:8243/SMRTLink/1.0.0/secondary-analysis/projects/2>

```
{
  "name" : "Test Project",
  "description" : "My First Test Project",
  "datasets" : [{
    "id" : 48
  }]
}
```

Update project datasets - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)",
      "type" : "string"
    }
  }
}
```

```

"isActive" : {
  "title" : "Is Active",
  "description" : "Flag specifying whether this project is
active", "type" : "boolean"
},
"datasets" : {
  "title" : "Datasets Array",
  "description" : "Array of the datasets that belong to
this project", "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" :
    "object",
    "properties" :
    {
      "id" : {
        "title" : "Dataset Id",
        "description" : "Identifier of this
dataset", "type" : "integer",
        "minimum" : 0
      },
      "uuid" : {
        "title" : "Dataset UUID",
        "description" : "UUID of this
dataset", "type" : "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-
9]{4}-[a-fA-F0-9]{12}
      },
      "name" : {
        "title" : "Dataset Name",
        "description" : "Display name of this
dataset", "type" : "string",
        "minLength" : 1
      },
      "version" : {
        "title" : "Version",
        "description" : "Version of this
dataset", "type" : "string",
        "format" :
        "sem-ver",
        "minLength
" : 5
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this dataset was
created", "type" : "string",
        "format" : "date-time"
      },
      "updatedAt" : {
        "title" : "Updated at",
        "description" : "Time when this dataset was
updated", "type" : "string",
        "format" : "date-time"
      },
      "projectId" : {
        "title" : "Project Id",
        "description" : "Identifier of the project that this dataset belongs to",
        "type" : "integer",
        "minimum" : 0
      },
    }
  },

```



```

    "jobId" : {
      "title" : "Job Id",
      "description" : "Identifier of the job that generated this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "userId" : {
      "title" : "User Id",
      "description" : "Identifier of the user who imported this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "path" : {
      "title" : "Dataset Path",
      "description" : "Path to this dataset",
      "type" : "string",
      "format" : "uri"
    },
    "tags" : {
      "title" : "Dataset Tags",
      "description" : "Tags assigned to this dataset upon creation.",
      "type" : "array",
      "items" : {
        "type" : "string"
      },
      "uniqueItems" : true
    },
    "numRecords" : {
      "title" : "Number of Records",
      "description" : "Number of records in this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "totalLength" : {
      "title" : "Total Length",
      "description" : "Total length of this dataset",
      "type" : "integer",
      "minimum" : 0
    },
    "md5" : {
      "title" : "md5",
      "description" : "md5 checksum of this dataset",
      "type" : "string",
      "format" : "md5",
      "pattern" : "^[a-fA-F0-9]{32}$"
    },
    "isActive" : {
      "title" : "Is Active",
      "description" : "Boolean flag specifying whether this dataset is active",
      "type" : "boolean"
    },
    "comments" : {
      "title" : "Comments",
      "description" : "User description and comments about this dataset",
      "type" : "string"
    }
  },
  "required" : [
    "id",
    "uuid",
    "name",

```

```

        "version",
        "createdAt",
        "updatedAt",

        "projectId",
        "jobId",
        "userId",
        "path",
        "tags",
        "numRecords"
    ],
    "totalLength"
    , "md5",
    "isActive",
    "comments"
},
    "additionalProperties" : false
},
    "additionalItems" : false
},
    "members" : {
        "title" : "Members Array",
        "description" : "Array of the members that belong to this
project", "type" : "array",
        "minItems" : 1,
        "items" : {
            "type" :
            "object",
            "properties" :
            {
                "login" : {
                    "title" : "User Login",
                    "description" : "Login name of this
user", "type" : "string"
                },
                "role" : {
                    "title" : "Member Role",
                    "description" : "Member role in the project, one of: OWNER, CAN_EDIT,
CAN_VIEW", "type" : "string"
                }
            }
        },
        "required" : [
            "login",
            "role"
        ],
        "additionalProperties" : false
    },
    "additionalItems" : false
},
    "required" : [
        "name",
        "id",
        "description",
        "createdAt",
        "updatedAt",
    ]
}

```

```

    "state", "isActive",
    "datasets", "members"
  ],
  "additionalProperties" : false
}

```

Update project datasets - response example

```

{
  "name" : "Test Project",
  "updatedAt" : "2016-08-05T21:56:39.568Z",
  "state" : "CREATED",
  "description" : "My First Test Project",
  "datasets" : [{
    "name" : "lambda",
    "updatedAt" : "2016-08-05T21:56:39.581Z",
    "path" : "/pbi/dept/secondary/siv/references/lambda/lambda.referenceset.xml",
    "tags" : "",
    "uuid" : "bf490f77-e615-462e-813a-0d5dc833bb5c",
    "totalLength" : 48502,
    "projectId" : 2,
    "numRecords" : 1,
    "version" : "0.3.0",
    "id" : 48,
    "md5" : "f46a9d229d529d9d46c09d6c333b11e0",
    "jobId" : 49,
    "createdAt" : "2016-08-05T21:07:04.626Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }],
  "id" : 2,
  "createdAt" : "2016-08-05T21:51:19.733Z",
  "isActive" : true,
  "members" : [{
    "login" : "jdoe",
    "role" : "OWNER"
  }]
}

```

3.3.7 Update Project Members

Set the list of members in a project identified by its Id.

Note: Valid project Id values can be found in “id” fields of objects returned by the [List All Projects](#) request.

Request

Method	URL
PUT	<a href="http://<host>:<port>/SMRTLlink/1.0.0/secondary-analysis/projects/{id}">http://<host>:<port>/SMRTLlink/1.0.0/secondary-analysis/projects/{id}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
id	integer	Unique identifier of the project; valid Id values can be found in “id” fields of objects returned by the List All Projects request.	Yes	No	2, 17

Request Headers	Description	Required	Example Value
Content-Type	MIME type of the content in the request.	Yes	application/json
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Authorization	Authentication credentials for WSO2 authentication. The value is taken from “access_token” returned by the WSO2 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e- 8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	See Update project members - request schema

Example Request

See [Update project members - request example](#)

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. The updated project object will be returned in the response body.
400 Bad Request	The request content was incorrect: deserialising ProjectRequest: missing description, found name”	Occurs when a required field (“description”, in the example) was missing in the request body.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.

401 Unau- thorized	The supplied authentication is invalid	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.
404 Not Found	Unable to find project 3	Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use the List All Projects request.
406 Not Accept- able	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml
415 Un-supported Media Type	There was a problem with the request's Content-Type: Expected 'application/json'	Occurs when an invalid value of the Content-Type header was passed in the request, for example: Content-Type: application/x-www-form-urlencoded

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 05 Aug 2016 21:58:17 GMT
Content-Length	Length of the response body in octets	Yes	1435
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Update project members - response schema

Example Response

See [Update project members - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For detail how to obtain the authentication token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	User roles in request body must be one of: "OWNER", "CAN_EDIT", "CAN_VIEW". Changed response and response schema: added field isActive, removed some fields from elements of "members" array. Changed authentication mechanism to WSO2.	No

Update project members - request schema

```
{
  "$schema" : "http://json-schema.org/draft-
04/schema#", "id" :
  "pacbio.secondary.schemas.project.update.members",
  "version" : "0.1.0",
  "title" : "Project Members Update",
  "description" : "A subset of Project object intended for updating a project with
members", "type" : "object",
  "properties" :
  { "name" : {
    "title" : "Project Name",
    "description" : "Name of this
project", "type" : "string"
  },
  "description" : {
    "title" : "Project Description",
    "description" : "Description of this
project", "type" : "string"
  },
  "members" : {
    "title" : "Members Array",
    "description" : "Array of the members that belong to this
project", "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" :
      "object",
      "properties"
      : {
```

```

    "user" : {
      "title" : "User",
      "description" : "Member user information",
      "type" : "object",
      "properties" : {
        "login" : {
          "title" : "User Login",
          "description" : "Login name of this user",
          "type" : "string"
        }
      },
      "required" : [
        "login"
      ],
      "additionalProperties" : false
    },
    "role" : {
      "title" : "Member Role",
      "description" : "Member role in the project (OWNER, CAN EDIT, CAN VIEW)",
      "type" : "string"
    }
  ],
  "required" : [
    "user",
    "role"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
}
},
"required" : [
  "name",
  "description",
  "members"
],
"additionalProperties" : false
}
}

```

Note: The structure of the PUT request body for updating a project may be the same as the full project structure (see [Update project members - response schema](#)), but many of the fields are optional. Only “name”, “description”, and “members” array are required fields for setting the list of members in a project.

Update project members - request example

Set the list of members in a project:

PUT <http://SMRTLinkServername.domain:8243/SMRTLink/1.0.0/secondary-analysis/projects/2>

```

{
  "name" : "Test Project",

```

```

    "description" : "My First Test Project",
    "state" : "ACTIVE",
    "members" : [{
      "user" : {
        "login" : "jdoe"
      },
      "role" : "OWNER"
    }, {
      "user" : {
        "login" : "tcruise"
      },
      "role" : "CAN_EDIT"
    }, {
      "user" : {
        "login" : "nkidman"
      },
      "role" : "CAN_VIEW"
    }
  ]
}

```

Note: The valid values of “role” field are: “OWNER”, “CAN_EDIT”, “CAN_VIEW”.

Update project members - response schema

```

{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.object",
  "version" : "0.1.0",
  "title" : "Project Object",
  "description" : "Project object schema",
  "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this project",
      "type" : "string"
    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",

```



```

    "format" : "date-time"
  },
  "state" : {
    "title" : "Project State",
    "description" : "Project state (CREATED,
ACTIVE)", "type" : "string"
  },
  "isActive" : {
    "title" : "Is Active",
    "description" : "Flag specifying whether this project is
active", "type" : "boolean"
  },
  "datasets" : {
    "title" : "Datasets Array",
    "description" : "Array of the datasets that belong to
this project", "type" : "array",
    "minItems" : 1,
    "items" : {
      "type" :
        "object",
      "properties"
        : {
      "id" : {
        "title" : "Dataset Id",
        "description" : "Identifier of this
dataset", "type" : "integer",
        "minimum" : 0
      },
      "uuid" : {
        "title" : "Dataset UUID",
        "description" : "UUID of
this dataset", "type" :
          "string",
        "format" : "uuid",
        "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}"
      },
      "name" : {
        "title" : "Dataset Name",
        "description" : "Display name of this
dataset", "type" : "string",
        "minLength" : 1
      },
      "version" : {
        "title" : "Version",
        "description" : "Version of this
dataset", "type" : "string",
        "format"
          : "sem-
ver",
        "minLengt
h" : 5
      },
      "createdAt" : {
        "title" : "Created at",
        "description" : "Time when this dataset was
created", "type" : "string",
        "format" : "date-time"
      },
      "updatedAt" : {

```

```

    "title" : "Updated at",

    "description" : "Time when this dataset was updated",
    "type" : "string",
    "format" : "date-time"
  },
  "projectId" : {
    "title" : "Project Id",
    "description" : "Identifier of the project that this dataset belongs to",
    "type" : "integer",
    "minimum" : 0
  },
  "jobId" : {
    "title" : "Job Id",
    "description" : "Identifier of the job that generated this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "userId" : {
    "title" : "User Id",
    "description" : "Identifier of the user who imported this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "path" : {
    "title" : "Dataset Path",
    "description" : "Path to this dataset",
    "type" : "string",
    "format" : "uri"
  },
  "tags" : {
    "title" : "Dataset Tags",
    "description" : "Tags assigned to this dataset upon creation.",
    "type" : "array",
    "items" : {
      "type" : "string"
    },
    "uniqueItems" : true
  },
  "numRecords" : {
    "title" : "Number of Records",
    "description" : "Number of records in this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "totalLength" : {
    "title" : "Total Length",
    "description" : "Total length of this dataset",
    "type" : "integer",
    "minimum" : 0
  },
  "md5" : {
    "title" : "md5",
    "description" : "md5 checksum of this dataset",
    "type" : "string",
    "format" : "md5",
    "pattern" : "^[a-fA-F0-9]{32}$"
  },
  "isActive" : {

```

```

        "title" : "Is Active",
        "description" : "Boolean flag specifying whether this dataset is active",
        "type" : "boolean"
    },
    "comments" : {
        "title" : "Comments",
        "description" : "User description and comments about this dataset",
        "type" : "string"
    }
},
"required" : [
    "id",
    "uuid",
    "name",
    "version",
    "createdAt",
    "updatedAt",
    "projectId",
    "jobId",
    "userId",
    "path",
    "tags",
    "numRecords",
    "totalLength",
    "md5",
    "isActive",
    "comments"
],
"additionalProperties" : false
},
"additionalItems" : false
},
"members" : {
    "title" : "Members Array",
    "description" : "Array of the members that belong to this project",
    "type" : "array",
    "minItems" : 1,
    "items" : {
        "type" : "object",
        "properties" : {
            "login" : {
                "title" : "User Login",
                "description" : "Login name of this user",
                "type" : "string"
            },
            "role" : {
                "title" : "Member Role",
                "description" : "Member role in the project, one of: OWNER, CAN_EDIT, CAN_VIEW",
                "type" : "string"
            }
        }
    }
},
"required" : [
    "login",
    "role"
],
"additionalProperties" : false

```

```
    },
    "additionalItems" : false
  },
  "required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state",
    "isActive",
    "datasets",
    "members"
  ],
  "additionalProperties" : false
}
```

Update project members - response example

```
{
  "name" : "Test Project",
  "updatedAt" : "2016-08-05T21:58:17.568Z",
  "state" : "ACTIVE",
  "description" : "My First Test Project",
  "datasets" : [{
    "name" : "lambda",
    "updatedAt" : "2016-08-05T21:56:39.581Z",
    "path" : "/pbi/dept/secondary/siv/references/lambda/lambda.referenceset.xml",
    "tags" : "",
    "uuid" : "bf490f77-e615-462e-813a-0d5dc833bb5c",
    "totalLength" : 48502,
    "projectId" : 2,
    "numRecords" : 1,
    "version" : "0.3.0",
    "id" : 48,
    "md5" : "f46a9d229d529d9d46c09d6c333b11e0",
    "jobId" : 49,
    "createdAt" : "2016-08-05T21:07:04.626Z",
    "isActive" : true,
    "userId" : 1,
    "comments" : "reference dataset comments"
  }],
  "id" : 2,
  "createdAt" : "2016-08-05T21:51:19.733Z",
  "isActive" : true,
  "members" : [{
    "login" : "jdoe",
    "role" : "OWNER"
  }, {
    "login" : "tcruise",
    "role" : "CAN_EDIT"
  }, {
    "login" : "nkidman",
    "role" : "CAN_VIEW"
  }
]
}
```

3.3.8 Delete Project

Delete a project object identified by its Id.

Note: Valid project Id values can be found in “id” fields of objects returned by the [List All Projects](#) request.

Request

Method	URL
DELETE	<a href="http://<host>:<port>/SMRTLlink/1.0.0/secondary-analysis/projects/{id}">http://<host>:<port>/SMRTLlink/1.0.0/secondary-analysis/projects/{id}

Path Parameters	Data Type	Description	Required	Multi-valued	Possible Values
id	integer	Unique identifier of the project; of the project; valid Id values can be found in "id" fields of objects returned by the List All Projects request.	Yes	No	2 17

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json
Authorization	Authentication credentials for WSO2 authentication. The value is taken from "access_token" returned by the WSO2 /token endpoint. For detail how to obtain the token, see Authentication for Project Service API .	Yes	Authorization: Bearer 768f438c-7b2b-3d9e-8a6e-7c1543e29a27

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is DELETE request.

Example Request

Delete the project object with Id = 8:

DELETE <http://SMRTLLinkServername.domain:8243/SMRTLLink/1.0.0/secondary-analysis/projects/8>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully. The thumbnail of the deleted project will be returned in the response body.
401 Unauthorized	The resource requires authentication, which was not supplied with the request	Occurs when the Authorization header was omitted in the request.
401 Unauthorized	The supplied authentication is invalid.	Occurs when an invalid (e.g. expired) authentication token was passed in the Authorization header of the request.
404 Not Found	Unable to find project 3	Occurs when an invalid value of Id (non-existing project identifier) was passed in the request. Note: To get the list of valid Id values, use the List All Projects request.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 03 Feb 2017 06:08:38 GMT
Content-Length	Length of the response body in octets	Yes	262
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Delete project - response schema

Example Response

See [Delete project - response example](#)

Additional Information

Authentication	Technical Support
Authentication is required for this endpoint. For detail how to obtain the authentication token, see Authentication for Project Service API .	E-mail: support@pacb.com

Change Log

Release	Description of changes	Backward-compatible
SMRT Analysis v4.0	New service endpoint.	N/A

Delete project - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.secondary.schemas.project.deleted",
  "version" : "0.1.0",
  "title" : "Deleted Project",
  "description" : "Deleted project
schema", "type" : "object",
  "properties" : {
    "name" : {
      "title" : "Project Name",
      "description" : "Name of this project",
      "type" : "string"
    },
    "id" : {
      "title" : "Project Id",
      "description" : "Identifier of this project",
      "type" : "integer"
    },
    "description" : {
      "title" : "Project Description",
      "description" : "Description of this
project", "type" : "string"
    }
  }
}
```

```

    },
    "createdAt" : {
      "title" : "Created at",
      "description" : "Time when this project was created",
      "type" : "string",
      "format" : "date-time"
    },
    "updatedAt" : {
      "title" : "Updated at",
      "description" : "Time when this project was updated",
      "type" : "string",
      "format" : "date-time"
    },
    "state" : {
      "title" : "Project State",
      "description" : "Project state (CREATED, ACTIVE)",
      "type" : "string"
    },
    "isActive" : {
      "title" : "Is Active",
      "description" : "Flag specifying whether this project is active",
      "type" : "boolean"
    }
  },
  "required" : [
    "name",
    "id",
    "description",
    "createdAt",
    "updatedAt",
    "state",
    "isActive",
  ],
  "additionalProperties" : false
}

```

Delete project - response example

Response body contains info about the project that is being deleted.

```

{
  "name" : "Create Test Project",
  "updatedAt" : "2017-02-14T18:45:01.404Z",
  "state" : "CREATED",
  "description" : "My First Test Project",
  "id" : 8,
  "createdAt" : "2017-02-03T06:04:01.711Z",
  "isActive" : false
}

```


Chapter 4 - SMRT Base Service API

4.1 Core Service

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4.1.1 Overview of Core Service

Use Cases

The Core Service provides metadata about each SMRT Link application service that is loaded, and monitors loaded application services.

Note: SMRT Link application services include:

- Run Design Service
 - Registry Service
 - Dataset Service
 - Jobs Service
 - Project Service
-

The Core Service also is the central hub where subsystem-to-subsystem communication occurs.

The Core Service includes endpoints that return the system status, configuration, the list of components, and the services' manifests.

The Core Service is accessible from the root of the SMRT Link application server.

4.1.2 Get System Status

Get the current status of the system and uptime.

Request

Method	URL
GET	<a href="http://<host>:<port>/status">http://<host>:<port>/status

Request Headers	Description	Required	Example
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the current status of the system and uptime:

GET <http://SMRTLinkServername.domain:8081/status>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 01 Apr 2016 18:57:54 GMT
Content-Length	Length of the response body in octets	Yes	267
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Get system status - response schema

Example Response

See [Get system status - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Base v3.0	New service endpoint.	N/A
SMRT Base v4.0	No changes from previous	N/A

Get system status - response schema

```

{
  "$schema" : "http://json-schema.org/draft-
04/schema#", "id" :
  "pacbio.smrtbase.schemas.system.status",
  "version" : "0.1.0",
  "title" : "System Status",
  "description" : "The current status of the system and
uptime", "type" : "object",
  "properties": {
    "uuid"
    : {
      "title" : "System UUID",
      "description" : "UUID of
the system", "type" :
      "string",
      "format" : "uuid",
      "pattern" : "^[a-fA-F0-9]{8}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{4}-[a-fA-F0-9]{12}$"
    },
    "version" : {
      "title" : "System Version",
      "description" : "The version number of the system, e.g. 0.50.14-
SNAPSHOT", "type" : "string"
    },
    "id" : {
      "title" : "System Id",
      "description" : "Identifier of the system, e.g.
pacbio.smrtservices.smrtlink_analysis", "type" : "string"
    },
    "uptime" : {
      "title" : "System Uptime",
      "description" : "Uptime of the system in
milliseconds", "type" : "integer"
    },
    "message" : {
      "title" : "System Message",
      "description" : "A narrative description of the system
status", "type" : "string"
    },
    "user" : {
      "title" : "System User",
      "description" : "Login name of the system
user", "type" : "string"
    }
  },
  "required" : [
    "uuid",
    "version",
    "id",
    "uptime",
    "message",
    "user"
  ],
  "additionalProperties" : false
}

```

Get system status - response example

```
{
  "uuid" : "1e18c39d-7a24-4913-9042-22df46f2cc45",
  "version" : "0.50.14-SNAPSHOT",
  "id" : "pacbio.smrtservices.smrtlink_analysis",
  "uptime" : 8275247,
  "message" : "Services have been up for 2 hours, 17 minutes and 55.247 seconds.",
  "user" : "secondarytest"
}
```

4.1.3 Get System Configuration

Get the current configuration of the system.

Request

Method	URL
GET	<a href="http://<host>:<port>/config">http://<host>:<port>/config

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the current configuration of the system:

GET <http://SMRTLinkServername.domain:8081/config>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 01 Apr 2016 19:01:02 GMT
Content-Length	Length of the response body in octets	Yes	37538

Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Get system configuration - response schema

Example Response

See [Get system configuration - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Base v3.0	New service endpoint.	N/A
SMRT Base v4.0	No changes from previous release.	N/A

Get system configuration - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.system.config",
  "version" : "0.1.0",
  "title" : "System Configuration",
  "description" : "The current configuration of the system",
  "type" : "object",
  "properties" : {
    "entries" : {
      "title" : "Configuration Parameters Array",
      "description" : "Key-value array of configuration parameters",
      "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "object",
        "properties" : {
          "key" : {
            "title" : "Parameter Key",
            "description" : "Name of a configuration parameter",
            "type" : "string"
          },
          "value" : {
            "title" : "Parameter Value",
            "description" : "Value of the configuration parameter",
            "type" : "string"
          }
        }
      },
      "required" : [
        "key", "value"
      ],
      "additionalProperties" : false
    }
  },
}
```

```

    "additionalItems" : false
  },
  "origin" : {
    "title" : "Configuration Origin",

    "description" : "Full path of configuration files from where configuration info
was taken", "type" : "string"
  }
},
"required"
  : [
    "entries",
    "origin"
  ],
"additionalProperties" : false
}

```

Get system configuration - response example

```

{
  "entries" : [{
    "key" : ".java.specification.name",
    "value" : "Java Platform API Specification"
  }, {
    "key" : ".spray.can.parsing.max-uri-length",
    "value" : "2k"
  }, {
    "key" : ".pb-engine.pb-tmp-dir",
    "value" : "/pbi/smrtsuite_166987/userdata/tmp_dir"
  }, {
    "key" : ".akka.io.udp.received-message-size-limit",
    "value" : "unlimited"
  }, {
    "key" : ".spray.can.server.parsing.header-cache.User-Agent",
    "value" : "32"
  }, {
    "key" : ".akka.actor.default-dispatcher.thread-pool-executor.core-pool-size-factor",
    "value" : "3"
  }, {
    "key" : ".sun.management.compiler",
    "value" : "HotSpot 64-Bit Tiered Compilers"
  }, {
    "key" : ".pb-services.db-uri",
    "value" : "/pbi/smrtsuite_166987/userdata/database/smrtlink_analysis_sqlite.db"
  }, {
    "key" : ".pb-engine.pb-smrtpipe-preset-xml",
    "value" : "/pbi/smrtsuite_166987/userdata/config/preset.xml"
  }, {
    "key" : ".akka.actor.default-dispatcher.executor",
    "value" : "default-executor"
  }, {
    "key" : ".spray.can.connection-dispatcher",
    "value" : "akka.actor.default-dispatcher"
  }, {
    "key" :
      ".user.language",
    "value" : "en"
  }
]
}

```

```

    }, {
      "key" :
      ".java.vm.vendor",
      "value" : "Oracle
      Corporation"
    }, {
      "key" : ".config.file",
      "value" : "/pbi/smrtsuite_166987/install/smrtlink-gui/prod.conf"
    }, {

      "key" :
      ".line.separator"
      , "value" : "\\n"
    }, {
      "key" : ".os.version",
      "value" : "3.13.0-24-generic"
    }, {
      "key" : ".spray.version",
      "value" : "1.3.2"
    }, {
      "key" : ".awt.toolkit",
      "value" : "sun.awt.X11.XToolkit"
    }
  ],
  "origin" : "merge of system properties,/pbi/smrtsuite_166987/install/smrtlink-
  gui/prod.conf: 1"
}

```

4.1.4 Get System Components

Get required component dependencies of the service.

Request

Method	URL
GET	<a href="http://<host>:<port>/components">http://<host>:<port>/components

Request Headers	Description	Required	Example Value
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get required component dependencies of the service:

GET <http://SMRTLinkServername.domain:8081/components>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Fri, 01 Apr 2016 19:03:27 GMT
Content-Length	Length of the response body in octets	Yes	68
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.2

Media Type	Response Body Representation / Schema
application/json	See Get system components - response schema

Example Response

See [Get system components - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Base v3.0	New service endpoint.	N/A
SMRT Base v4.0	“version” field removed from response.	No

Get system components - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.system.components",
  "version" : "0.1.0",
  "title" : "System Components",
  "description" : "Array of required system components",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "title" : "Component Id",
    "description" : "Identifier of this component, e.g. pacbio.smrtservices.components",
    "type" : "string"
  },
  "additionalItems" : false
}
```

Get system components - response example

```
[
  "pacbio.services.components"
]
```

4.1.5 Get Services Manifests

Get the list of the services' manifests.

Request

Method	URI
GET	<a href="http://<host>:<port>/services/manifests">http://<host>:<port>/services/manifests

Request Headers	Description	Required	Example
Accept	Content-Types that are acceptable for the response.	Yes	application/json

Media Type	Request Body Representation / Schema
application/json	Request schema is N/A, as this is GET request.

Example Request

Get the list of the services' manifests:

GET <http://SMRTLinkServername.domain:8081/services/manifests>

Response

HTTP Status Code	Error Message	Description
200 OK	None	Request was completed successfully.
406 Not Acceptable	Resource representation is only available with these Content-Types: application/json; charset=UTF-8	Occurs when an invalid value of the Accept header was passed in the request, for example: Accept: application/xml

Response Headers	Description	Required	Example Value
Access-Control-Allow-Origin	Specifies which web sites can participate in cross-origin resource sharing.	Yes	*
Date	Date and time that the message was sent	Yes	Thu, 09 Feb 2017 22:17:59 GMT
Content-Length	Length of the response body in octets	Yes	27488
Content-Type	MIME type of this content	Yes	application/json; charset=UTF-8
Server	Server name	Yes	spray-can/1.3.3

Media Type	Response Body Representation / Schema
application/json	See Get services manifests - response schema

Example Response

See [Get services manifests - response example](#)

Change Log

Release	Description of changes	Backward-compatible
SMRT Base v4.0	New service endpoint.	N/A

Get services manifests - response schema

```
{
  "$schema" : "http://json-schema.org/draft-04/schema#",
  "id" : "pacbio.smrtbase.schemas.services.manifests",
  "version" : "0.1.0",
  "title" : "Services Manifests",
  "description" : "Array of services' manifests",
  "type" : "array",
  "minItems" : 1,
  "items" : {
    "type" :
    "object",

    "properties" : {
      "name" : {
        "title" : "Name",
        "description" : "The name of the service",
        "type" : "string"
      },
    }
  },
}
```

```

    "description" : {
      "title" : "Description",
      "description" : "The description of the service",
      "type" : "string"
    },
    "version" : {
      "title" : "Version",
      "description" : "The version number of the service",
      "type" : "string"
    },
    "id" : {
      "title" : "Id",
      "description" : "The identifier of the service",
      "type" : "string"
    },
    "dependencies" : {
      "title" : "Dependencies",
      "description" : "The dependencies of the
service", "type" : "array",
      "minItems" : 1,
      "items" : {
        "type" : "string",
        "additionalItems" : false
      }
    }
  },
  "required" : [
    "name",
    "description",
    "version",
    "id",
    "dependencies"
  ],
  "additionalProperties" : false
},
"additionalItems" : false
}

```

Get services manifests - response example

```

[ {
  "name" : "pbtranscript",
  "description" :
    "pbtranscript",
  "version" :
    "https://github.com/PacBio/pbtranscript/7dac953c85ff8b3043f224a1cfalc4f386259f8d",
  "id" : "smrttools-pbtranscript",
  "dependencies" : []
}, {
  "name" :
    "pbcommand",
  "description" :
    "pbcommand",
  "version" :
    "https://github.com/PacBio/pbcommand/1fb4011d6a5a705992f3723740f48bc32061dd0c",
  "id" : "smrttools-pbcommand",
  "dependencies" : []
}, {
  "name" : "Component Manifest Service",
  "description" : "Subsystem Component Manifest/Version

```

```

    Service",
    "version" : "0.2.0",
    "id" : "pacbio.services.service_manifests",
    "dependencies" : []
  }, {
    "name" : "SMRT Link Analysis Services and
    GUI", "description" : "SMRT Link Analysis
    Services and GUI", "version" :
    "4.0.0.190159",
    "id" : "smrtlink-
    analysisservices-gui",
    "dependencies" : [
    "smrtlink_
    ui",
    "smrtlink-analysisservices-gui-thirdparty-packages"
    ]
  }
  ,
  {
    "name" : "smrt-
    link",
    "description" :
    "SMRT Link",
    "version" :
    "4.0.0.190159",
    "id" :
    "smrtlink_ui",
    "dependencies"
    : [
    "smrtlink_services"
    ]
  }
  ,
  {
    "name" : "Thirdparty Packages",
    "description" : "Thirdparty
    Packages", "version" : "",
    "id" : "smrtlink-analysisservices-gui-thirdparty-packages",
    "dependencies" : [
    "smrtlink-analysisservices-gui-thirdparty-packages-java"
    ]
  }
  ,
  {
    "name" :
    "javapkg",
    "description" :
    "javapkg",
    "version" : "",
    "id" : "smrtlink-analysisservices-gui-thirdparty-packages-
    java", "dependencies" : [
    "smrtlink-analysisservices-gui-jre"
    ]
  }
  ,
  {
    "name" : "bax2bam",
    "description" :
    "bax2bam",
    "version" :

```

```
"https://github.com/PacBio/blasr/5b30da0cf76257b5ec10623a3cd27fac4b8fbac3", "id" :  
"smrttools-bax2bam",  
"dependencies" : []  
}  
,  
{  
  "name" : "SMRT View",  
  "description" : "SMRT View (smrtview-fromsrc_4.0.0.189856)",  
  "version" : "4.0.0.189856",  
  "id" : "smrtview",  
  "dependencies" : [  
    "smrtview-thirdparty-packages"  
  ]  
}  
]
```

Chapter 5 - Common Tasks And Workflows

This chapter describes common tasks performed using the SMRT Link Web Services API and provides “how to” recipes for accomplishing these tasks.

To accomplish a task, you usually need to perform several API calls; the workflow describes the order of these calls.

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5.1 How to get the reports for job X

5.1.1 Workflow

To get the reports for a job, given the job ID, perform the following steps:

Determine the job type from the list of available job types. Use the GET request with the following endpoint:
GET http://smrtlink-release:9091/secondary-analysis/job-manager/job-types

Note: See [List All Job Types](#) for more details.

1. Get the corresponding job type string.
 The job type can be found in the “jobTypeid” field.

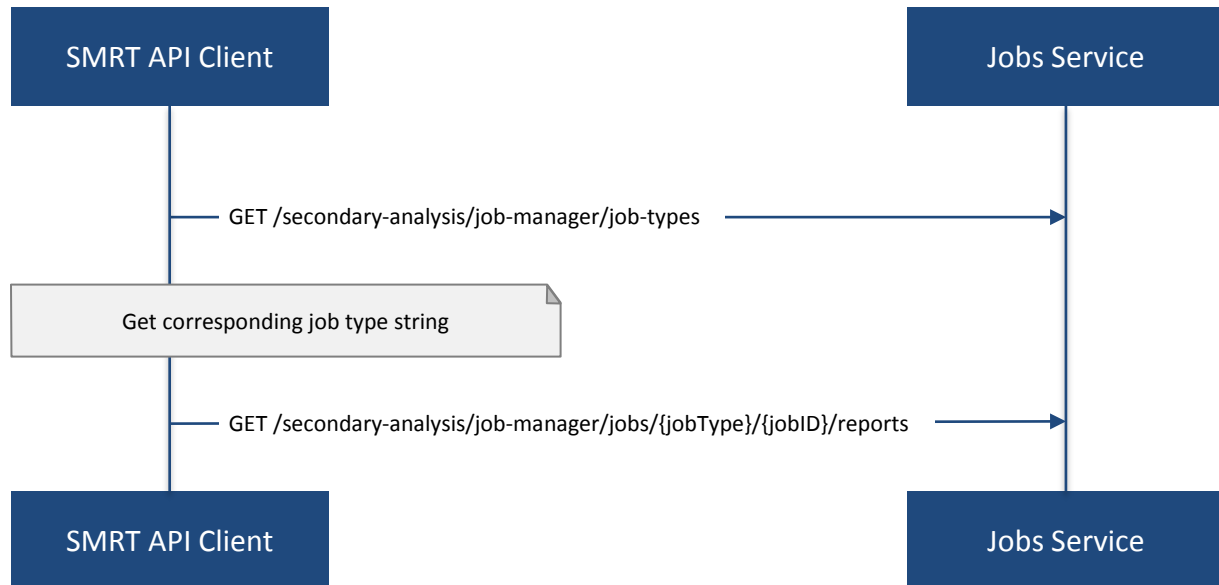
Note: Job types are explained in [Overview of Jobs Service](#).

2. Get reports produced by the job.
 Given the job ID and the job type, use them in the GET request with the following endpoint:
GET http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/{jobType}/{jobID}/reports

Note: See [Fetch Job Reports](#) for more details.

5.1.2 Diagram

GET JOB REPORTS SEQUENCE DIAGRAM



5.1.3 Example

Suppose you view a SMRT Analysis job results page in the SMRT Link UI.

To find the job ID, look for the “Analysis Id” field under Analysis Overview, Status.

Note: The job ID will also appear in the `{jobID}` path parameter of the SMRT Link UI URL `http://smrtlink-release:9090/#/analysis/job/{jobID}`

Suppose you view the following SMRT Analysis job results page:

`http://smrtlink-release:9090/#/analysis/job/3957`

Then the job ID is 3957.

To get the job type, use the GET request with the following endpoint:

GET `http://smrtlink-release:9091/secondary-analysis/job-manager/job-types`

Look for the appropriate `jobType` in the response.

A SMRT Analysis job corresponds to the ‘pbsmrtpipe’ type, so the `jobType` will be “pbsmrtpipe”. The desired endpoint is:

`http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/pbsmrtpipe/3957/reports`

Use the GET request with this endpoint to get reports produced by the job with ID = 3957:

GET `http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/pbsmrtpipe/3957/repo`

5.2 How to get reports for dataset UUID Y

5.2.1 Workflow

To get reports for a dataset, given the dataset UUID, perform the following steps:

1. Determine the dataset type from the list of available dataset types. Use the GET request with the following endpoint:
GET http://smrtlink-release:9091/secondary-analysis/dataset-types

Note: See [List All Dataset Types](#) for more details.

2. Get the corresponding dataset type string.
The dataset type can be found in the “shortName” field.

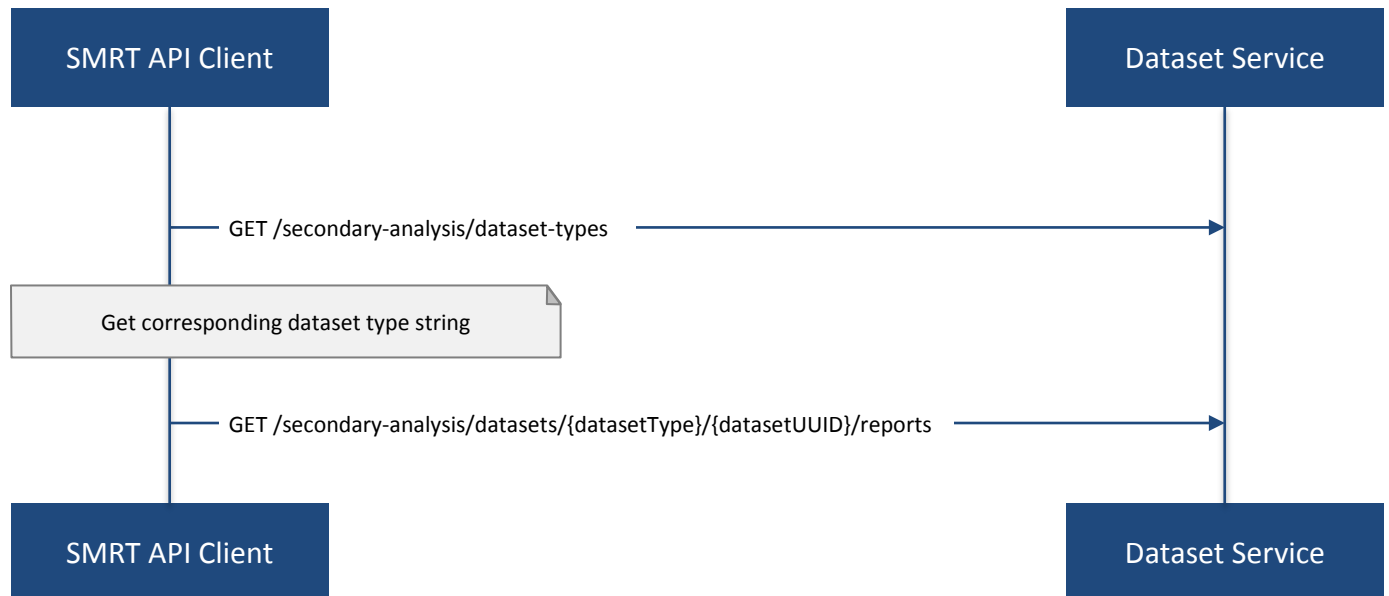
Note: Dataset types are explained in [Overview of Dataset Service](#).

3. Get reports that correspond to the dataset.
Given the dataset UUID and the dataset type, use them in the GET request with the following endpoint:
GET http://smrtlink-release:9091/secondary-analysis/datasets/{datasetType}/{datasetUUID}/reports

Note: See [Get Dataset Reports by Type and UUID](#) for more details.

5.2.2 Diagram

GET DATASET REPORTS SEQUENCE DIAGRAM



5.2.3 Example

To get reports associated with a subreadset with UUID = 146338e0-7ec2-4d2d-b938-11bce71b7ed1, perform the following steps:

Use the GET request with the following endpoint:

GET <http://smrtlink-release:9091/secondary-analysis/dataset-types>

You see that the shortName of subreadsets is

“subreads”. The desired endpoint is:

<http://smrtlink-release:9091/secondary-analysis/datasets/subreads/146338e0-7ec2-4d2d-b938-11bce71b7ed1/reports>

Use the GET request with this endpoint to get reports that correspond to the subreadset with UUID = 146338e0-7ec2-4d2d-b938-11bce71b7ed1:

GET <http://smrtlink-release:9091/secondary-analysis/datasets/subreads/146338e0-7ec2-4d2d-b938-11bce71b7ed1/reports>

5.3 How to get QC reports for a particular run

5.3.1 Workflow

To get QC reports for a particular run, given the run Name, perform the following steps:

1. Get the list of all runs.

Use the GET request with the following endpoint:

GET <http://smrtlink-release:9091/smrt-link/run>

Note: See [List All Run Designs](#) for more details.

2. In the response, do a text search for the run Name.

Find the object whose “name” field is equal to the run Name, and get the run UUID, which can be found in the “uniqueId” field.

3. Get all collections that belong to this run.

Use the run UUID found in the previous step in the GET request with the following endpoint:

GET <http://smrtlink-release:9091/smrt-link/runs/{runUUID}/collections>

Note: See [Get Run Design Collections](#) for more details.

4. Take a collection UUID of one of collection objects received in the previous response. The collection UUIDs can be found in the “uniqueId” fields.

For complete collections, the collection UUID will be the same as the UUID of the subreadset for that collection.

Note: Make sure that the collection whose “uniqueId” field you take has the field “status” set to “Complete”. This is because obtaining dataset reports based on the collection UUID as described below will only work if the collection is complete. If the collection is not complete, the subreadset does not exist yet.

5. Retrieve the QC reports that correspond to this collection.

Use the collection UUID obtained in the previous step in the GET request with the following endpoint:

GET <http://smrtlink-release:9091/secondary-analysis/datasets/subreads/{collectionUUID}/reports>

Note: See [Get Dataset Reports by Type and UUID](#) for more details.

6. Take a report UUID of one of the reports of the collection from the previous response. The report UUIDs can be found in the “uuid” fields.

7. Download one of the reports associated with the collection.

Use the report UUID in the GET request with the following endpoint:

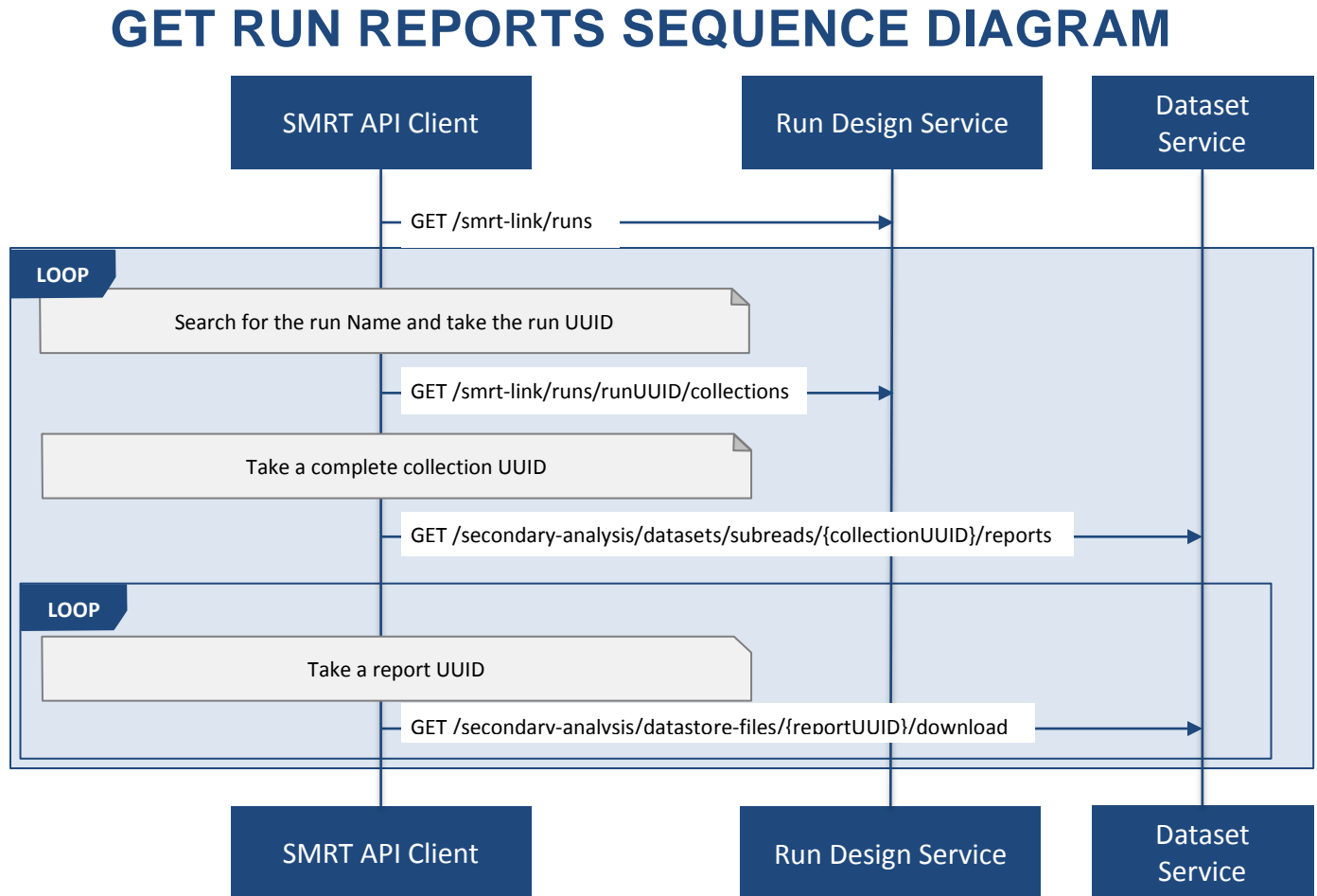
GET <http://smrtlink-release:9091/secondary-analysis/datastore-files/{reportUUID}/download>

Note: See [Download Datastore Files](#) for more details.

8. Repeat Steps 6 - 7 to download all desired reports associated with that collection.

9. Repeat Steps 4 - 8 to download QC reports for all complete collections of that run.

5.3.2 Diagram



5.3.3 Example

You view the Run QC page in the SMRT Link UI, and open the page of a run with status "Complete". Take the run Name and look for the run UUID in the list of all runs, as described above.

Note: The run ID will also appear in the `{runUUID}` path parameter of the SMRT Link UI URL
<http://smrtlink-release:9090/#/run-qc/{runUUID}>

So the shorter way would be to take the run UUID directly from the URL, such as
<http://smrtlink-release:9090/#/run-qc/d7b83cfc-91a6-4cea-8025-8bcc1f39e045>

With this run UUID = d7b83cfc-91a6-4cea-8025-8bcc1f39e045, get all collections that belong to this run:
`GET http://smrtlink-release:9091/smrt-link/runs/d7b83cfc-91a6-4cea-8025-8bcc1f39e045/collections`

Take a UUID of a completed collection, e.g. “uniqueId”: “59230aeb-a8e3-4b46-b1b1-

24c782c158c1”. With this collection UUID, retrieve QC reports of the corresponding subreadset:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/59230aeb-a8e3-4b46-b1b1-24c782c158c1/reports

Take a UUID of some report, e.g. “uuid”: “00c310ab-e989-4978-961e-c673b9a2b027”. With this report UUID, download the corresponding report file:

*GET
http://smrtlink-release:9091/secondary-analysis/datastore-files/00c310ab-e989-4978-961e-c673b9a2b027/download*

Repeat the last two API calls until you download all desired reports for all complete collections.

5.4 How to get QC reports for a particular collection

5.4.1 Workflow

For completed collections, the collection UUID will be the same as the UUID of the subreadset for that collection. To retrieve the QC reports of a completed collection, given the collection UUID, perform the following steps:

1. Get the QC reports that correspond to this collection. Use the GET request with the following endpoint:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/{collectionUUID}/reports

Note: See [Get Dataset Reports by Type and UUID](#) for more details.

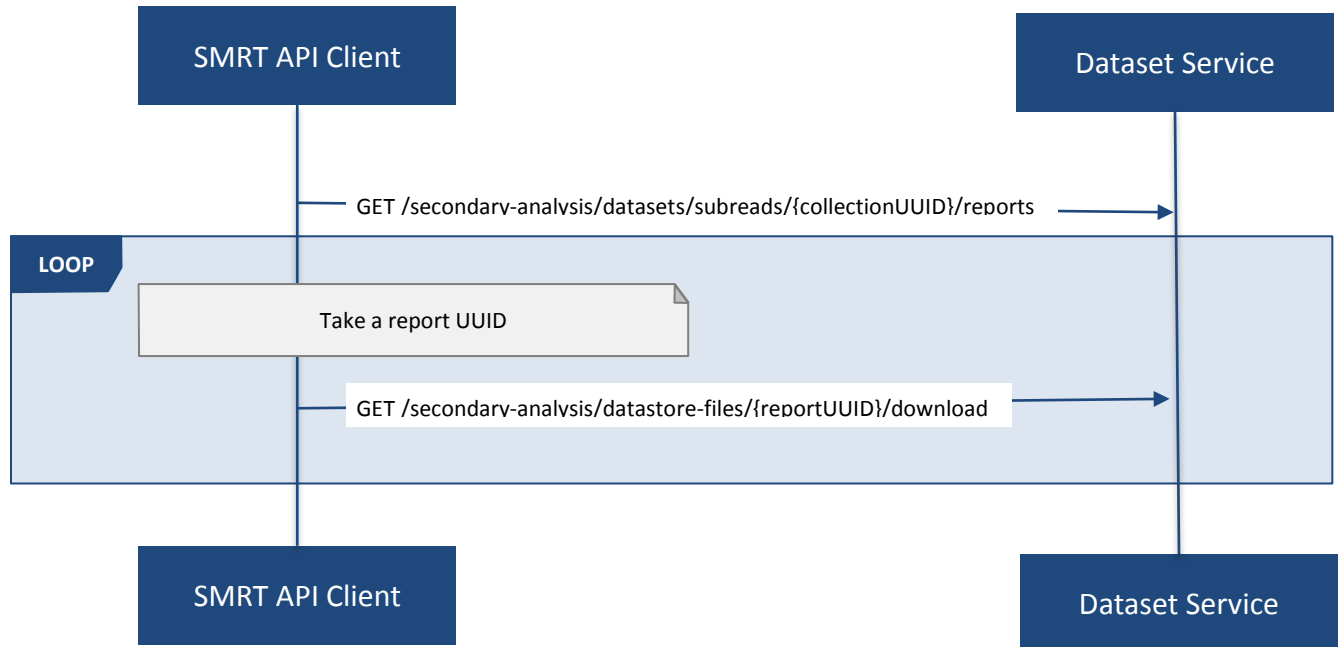
Note: Obtaining dataset reports based on the collection UUID as described above will only work if the collection is complete. If the collection is not complete, then the subreadset does not exist yet.

2. Take a report UUID of one of the reports of the collection from the previous response. The report UUIDs can be found in the “uuid” fields.
3. Download one of the reports associated with the collection.
Use the report UUID in the GET request with the following endpoint:
GET http://smrtlink-release:9091/secondary-analysis/datastore-files/{reportUUID}/download
4. Repeat Steps 2 - 3 to download all desired reports associated with the collection.

Note: See [Download Datastore Files](#) for more details.

5.4.2 Diagram

GET COLLECTION REPORTS SEQUENCE DIAGRAM



5.4.3 Example

Suppose you have a complete collection with UUID = 59230aeb-a8e3-4b46-b1b1-

24c782c158c1. Get all reports of the subreadset which corresponds to this collection:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/59230aeb-a8e3-4b46-b1b1-24c782c158c1/reports

Take the UUID of a desired report, e.g. "uuid": "00c310ab-e989-4978-961e-

c673b9a2b027". With this report UUID, download the corresponding report file:

GET

http://smrtlink-release:9091/secondary-analysis/datastore-files/00c310ab-e989-4978-961e-c673b9a2b027/ download

Repeat the last API call until you download all desired reports associated with this collection.

5.5 How to get recent runs

5.5.1 Workflow

To get recent runs, perform the following steps:

1. Use the GET request with the following endpoint:

GET http://smrtlink-release:9091/smrt-link/runs

Note: See [List All Run Designs](#) for more details.

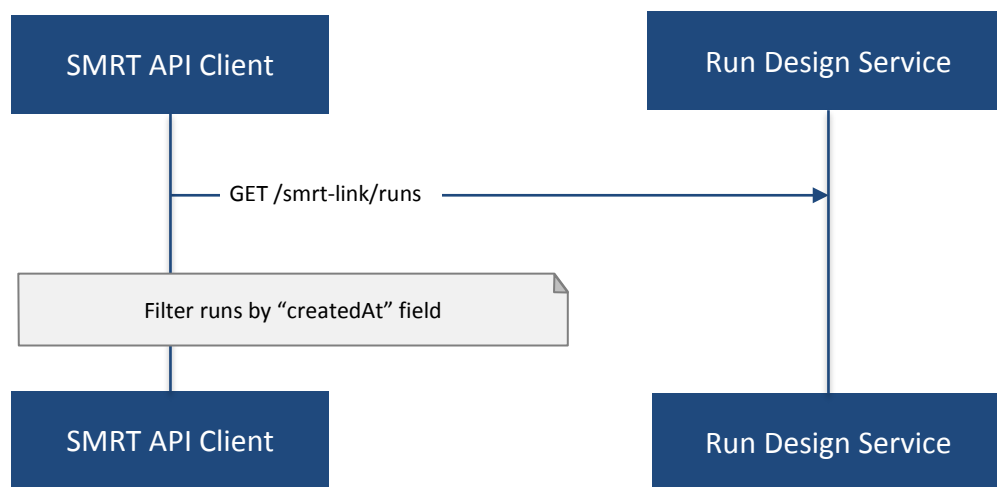
2. Filter the response based on the value of the "createdAt" field. For example:

"createdAt": "2016-12-13T19:11:54.086Z"

Note: You may also search runs based on specific criteria, such as reserved state, creator, or summary substring. See [Search Run Designs](#) for more details.

5.5.2 Diagram

GET RECENT RUNS SEQUENCE DIAGRAM



5.5.3 Example

Suppose you want to find all runs created on or after 01.01.2017.

First, get the list of all runs:

GET http://smrtlink-release:9091/smrt-link/runs

The response will be an array of run objects, as in the following example:

```
[ {
  "name" : "2016-11-08_3150473_2kLambda_A12",
  "uniqueId" : "97286726-b243-45b3-82f7-8b5f58c56d53",
  "createdAt" : "2016-11-08T17:50:57.955Z",
  ...
  "summary" : "lambdaNEB"
}, {
  "name" : "2017_01_24_A7_4kbSymAsym_DS_3150540",
  "uniqueId" : "abd8f5ec-a177-4d41-8556-81c5ffb6b0aa",
  "createdAt" : "2017-01-24T20:09:27.629Z",
  ...
  "summary" : "pBR322_InsertOnly"
}, {
```

```
    "name" : "SMS_GoatVer_VVC034_3150433_2kLambda_400pm_SNR10.5",
    "uniqueId" : "b81de65a-8018-4843-9da7-ff2647a9d01e",
    "createdAt" : "2016-10-17T23:36:35.000Z",
    ...
    "summary" : "lambdaNEB"
  }, {
    "name" : "2017_01_21_A7_RC0_2.5-6kb_DS",
    "uniqueId" : "5026afad-fbfa-407a-924b-f89dd019ca9f",
    "createdAt" : "2017-01-21T00:21:52.534Z",
    ...
    "summary" : "gencode_23_transcripts"
  }
]
```

Now, search the above response for all run objects whose “createdAt” field starts with the “2017_01” substring. From the above example, you will get two runs that fit your criteria (i.e. created on or after 01.01.2017):

- run with “name” equal to “2017_01_24_A7_4kbSymAsym_DS_3150540”,
- run with “name” equal to “2017_01_21_A7_RC0_2.5-6kb_DS”.

5.6 How to setup a run design

5.6.1 Workflow

To setup a run design, perform the following steps:

1. Prepare the Run Design information in an XML file.
The XML file should correspond to the PacBioDataModel.xsd schema.

Note: See an example XML file in “Create run design - request example” of [Create Run Design](#).

2. Create the run design.
Use the POST request with the following endpoint:
POST http://smrtlink-release:9091/smrt-link/runs

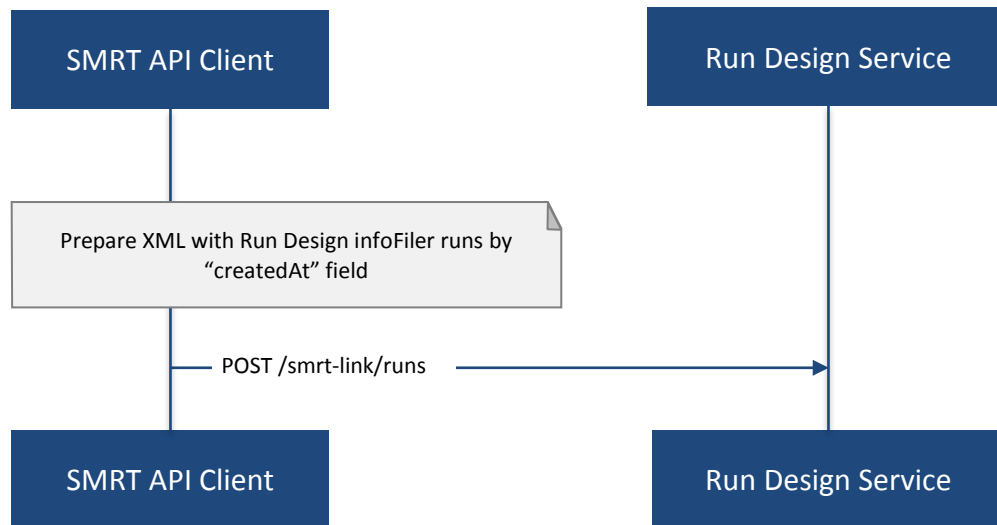
The payload (a.k.a. request body) for this POST request is a JSON with the following fields:

- dataModel: The serialized XML containing the Run Design information
- name: The name of the run
- summary: A short description of the run

Note: See [Create Run Design](#) for more details.

5.6.2 Diagram

SETUP RUN DESIGN SEQUENCE DIAGRAM



5.6.3 Example

Create a run design using the following API call:

POST <http://smrtlink-release:9091/smrt-link/runs>

Use the payload as in the following example:

```

{
  "dataModel" : "<serialized Run Design XML file according to the
PacBioDataModel.xsd schema>",
  "name" : "Run_201601220309_D15",
  "summary" : "tkb_C5_circular_23x_I92782"
}
  
```

5.7 How to monitor progress of a run

5.7.1 Workflow

Run progress can be monitored by looking at the completion status of each collection associated with that run. Perform the following steps:

1. If you do not have the run UUID, retrieve it as follows:
 - a. Get the list of all runs, using the GET request with the following endpoint:
GET <http://smrtlink-release:9091/smrt-link/runs>

Note: See [List All Run Designs](#) for more details.

- b. In the response, do a text search for the run Name.
Find the object whose "name" field is equal to the run Name, and get the run UUID, which can

be found in the “uniqueId” field.

2. Once you have the run UUID, get all collections that belong to the run. Use the run UUID in the GET request with the following endpoint:

GET http://smrtlink-release:9091/smrt-link/runs/{runUUID}/collections

Note: See [Get Run Design Collections](#) for more details.

The response will contain the list of all collections of that run.

3. Monitor collection status to see when all collections are complete.

Until all collections of the run have the field “status” set to “Complete”, repeat the GET request with the following endpoint:

GET http://smrtlink-release:9091/smrt-link/runs/{runUUID}/collections

You may also monitor each collection individually.

Use the collection UUID in the GET request with the following endpoint:

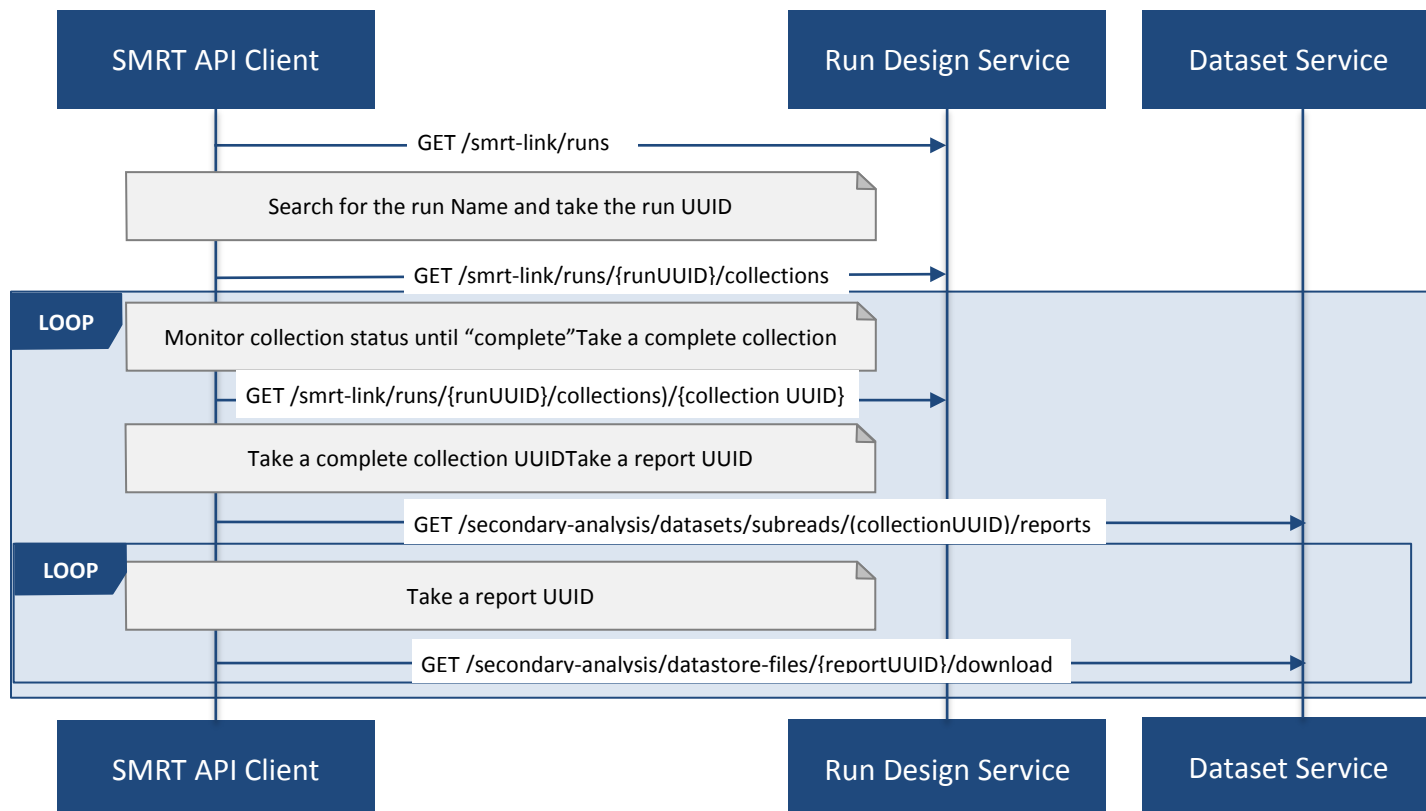
GET http://smrtlink-release:9091/smrt-link/runs/{runUUID}/collections/{collectionUUID}

Note: See [Get Run Design Collection by Id](#) for more details.

- To monitor run progress using QC metrics, use the same steps at the collection level, for each collection that belongs to this run. For instructions, see [How to get QC reports for a particular collection](#).

The full set of QC metrics for a collection will only be available when the collection is complete. Monitor the completion status of each collection and, for each complete collection, check its QC metrics. QC metrics of all collections that belong to the run will let you evaluate the overall success of the run.

5.7.2 Diagram



5.7.3 Example

If you want to monitor the run with Name = "54149_DryRun_2Cells_20161219", use the following steps:

- Get the list of all runs:
GET http://smrtlink-release:9091/smrt-link/runs

The response will be an array of run objects, as in the following example:

```
[ {
  "name" : "2016-11-08_3150473_2kLambda_A12",
  "uniqueId" : "97286726-b243-45b3-82f7-8b5f58c56d53",
  "createdAt" : "2016-11-08T17:50:57.955Z",
  ...
  "summary" : "lambdaNEB"
}
```

```

    }, {
    ...
    }, {
      "name" : "54149_DryRun_2Cells_20161219",
      "uniqueId" : "798ff161-23ee-433a-bfd9-be8361b40f15", "createdAt" : "2016-12-19T16:08:41.610Z",
      ...
      "summary" : "DryRun_2Cells"
    }, {
    ...
    }, {
      "name" : "2017_01_21_A7_RC0_2.5-6kb_DS",
      "uniqueId" : "5026afad-fbfa-407a-924b-f89dd019ca9f", "createdAt" : "2017-01-21T00:21:52.534Z",
      ...
    }
  ]
  "summary" : "gencode_23_transcripts"

```

3. Search the above response for the object with the "name" field equal to "54149_DryRun_2Cells_20161219".

From the above example, you will get the run object with the "uniqueId" field equal to "798ff161-23ee-433a-bfd9-be8361b40f15".

4. With this run UUID = 798ff161-23ee-433a-bfd9-be8361b40f15, get all collections that belong to this run:

GET <http://smrtlink-release:9091/smrt-link/runs/798ff161-23ee-433a-bfd9-be8361b40f15/collections>

The response will be an array of collection objects of this run, as in the following

example: [{

```

  "name" : "DryRun_1stCell",
  "instrumentName" : "Sequel",
  "context" :
    "m54149_161219_161247",
  "well" : "A01",
  "status" :
    "Complete",
  "instrumentId" :
    "54149",
  "startedAt" : "2016-12-19T16:12:47.014Z",
  "uniqueId" : "7cf74b62-c6b8-431d-b8ae-7e28cfd8343b",
  "collectionPathUri" :
    "/pbi/collections/314/3140149/r54149_20161219_160902/1_A01", "runId" :
    "798ff161-23ee-433a-bfd9-be8361b40f15",
  "movieMinutes" : 120
}, {
  "name" : "DryRun_2ndCell",
  "instrumentName" : "Sequel",
  "context" :
    "m54149_161219_184813",
  "well" : "B01",
  "status" : "Ready",
  "instrumentId" :
    "54149",
  "startedAt" : "2016-12-19T16:12:47.014Z",

```

```
    "uniqueId" : "08af5ab4-7cf4-4d13-9bcb-ae977d493f04",
    "collectionPathUri" :
    "/pbi/collections/314/3140149/r54149_20161219_160902/2_B01",
    "runId" : "798ff161-23ee-433a-bfd9-be8361b40f15",
    "movieMinutes" : 120
  }
]
```

In the above example, the first collection has "status": "Complete". You can take its UUID, i.e. "uniqueId": "7cf74b62-c6b8-431d-b8ae-7e28cf8343b", and get its QC metrics. For instructions, see [How to get QC reports for a particular collection](#).

The second collection has "status": "Ready". You can take its UUID, i.e. "uniqueId": "08af5ab4-7cf4-4d13-9bcb-ae977d493f04", and monitor its status until it becomes "Complete"; use the following API call:
GET http://smrtlink-release:9091/smrt-link/runs/798ff161-23ee-433a-bfd9-be8361b40f15/collections/08af5ab4-7cf4-4d13-9bcb-ae977d493f04

Once this collection becomes completed, you can get its QC metrics as well. For instructions, see [How to get QC reports for a particular collection](#).

5.8 How to capture run-level summary metrics

Run-level summary metrics are captured in the QC reports. See the following sections:

- [How to get QC reports for a particular run](#)
- [How to get QC reports for a particular collection](#)

5.9 How to setup a job on a particular collection

5.9.1 Workflow

To create a job using the SMRT Link Web Services API, use the POST request with the following endpoint:
POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/{jobTypeId}

Note: See [Create Job by Type](#) for more details.

The payload (a.k.a. request body) for this POST request is a JSON whose schema depends on the job type.

To specifically create a SMRT Analysis job, you need to create a job of type "pbsmrtpipe", with the payload as the one shown in "Example 6 - request to create a job of type 'pbsmrtpipe'" of [Create Job by Type](#).

You need to provide dataset IDs in the "entryPoints" array of the above payload.

To setup a job for a given collection, you need to specify the dataset ID for the subreadset of the collection in the request body of the [Create Job by Type](#) POST request.

Perform the following steps:

1. If you do not have the collection UUID, retrieve it as follows.

To get the collection UUID starting from a run page in the SMRT Link Run QC UI, do the following:

- a. Get the run Name from the run page in the SMRT Link Run QC UI.
- b. Get the list of all runs, using the GET request with the following endpoint:
GET http://smrtlink-release:9091/smrt-link/runs

Note: See [List All Run Designs](#) for more details.

- c. In the response, do a text search for the run Name.
Find the object whose “name” field is equal to the run Name, and get the run UUID, which can be found in the “uniqueId” field.
- d. Once you have the run UUID, get all collections that belong to this run. Use the run UUID in the GET request with the following endpoint:
GET http://smrtlink-release:9091/smrt-link/runs/{runUUID}/collections

Note: See [Get Run Design Collections](#) for more details.

- e. From here you can get the UUID of the collection.
It can be found in the “uniqueId” field of the corresponding collection object from the previous response.

Note: Make sure that the collection whose “uniqueId” field you take has the field “status” set to “Complete”. This is because obtaining dataset ID based on the collection UUID as described below will only work if the collection is complete. If the collection is not complete, then the subreadset does not exist yet.

2. Find the dataset ID that corresponds to the collection UUID.

For complete collections, the collection UUID will be the same as the UUID of the subreadset for that collection.

Use the collection UUID in the GET request on the following endpoint to get the corresponding subreadset object:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/{collectionUUID}

Note: See [Retrieve Dataset by Type and UUID](#) for more details.

Get the dataset ID from the “id” field of the response.

3. Build the request body with the dataset ID.

Use the dataset ID in the payload as the one shown in “Example 6 - request to create a job of type ‘pbsmrtpipe’” of [Create Job by Type](#).

4. Create a job of type “pbsmrtpipe”.

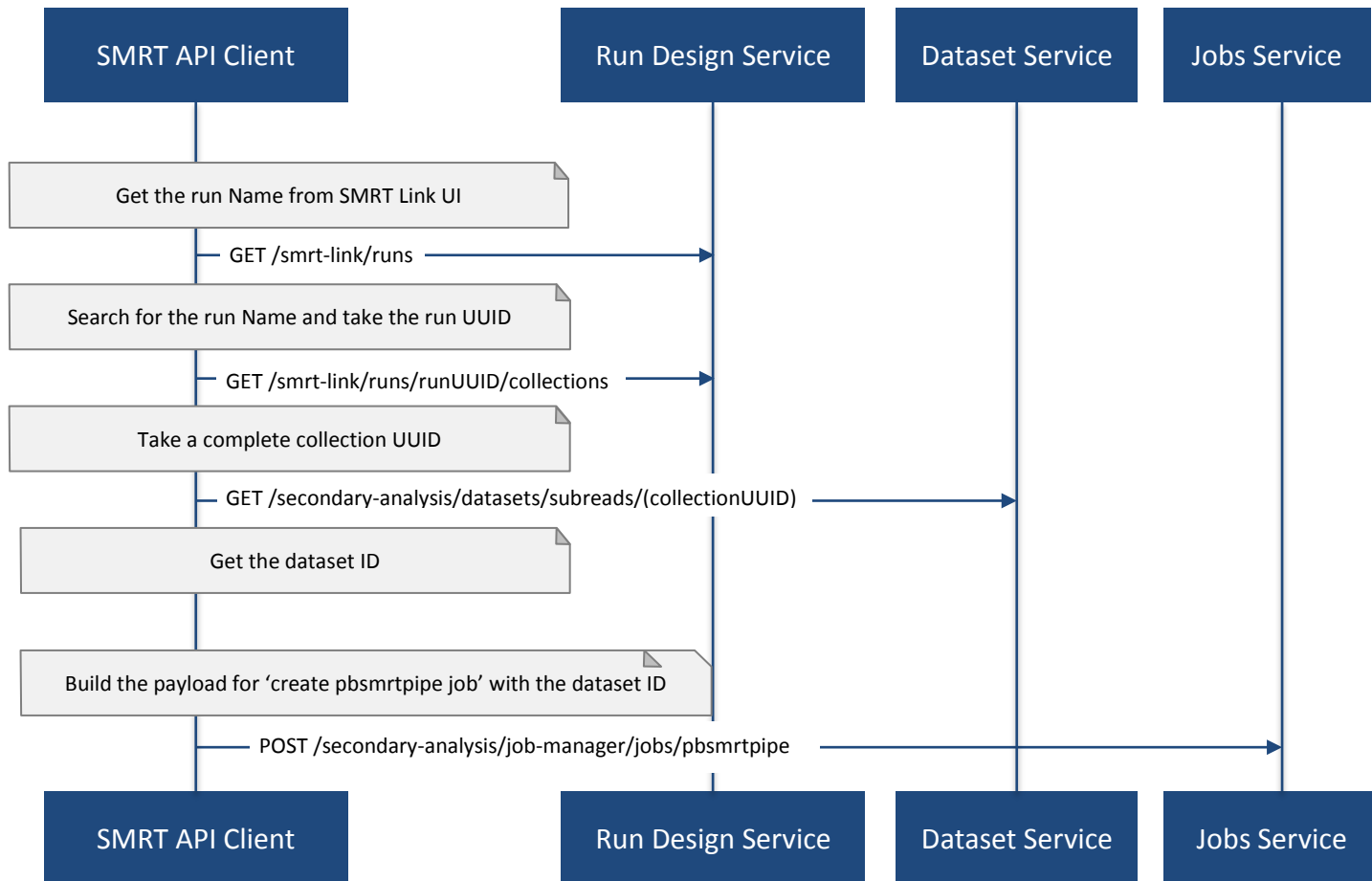
Use the request body built in the previous step in the POST request with the following endpoint:

POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/pbsmrtpipe

Note: See [Create Job by Type](#) for more details.

5.9.2 Diagram

SETUP JOB FOR COLLECTION SEQUENCE DIAGRAM



5.9.3 Example

Suppose you want to setup a job for complete collections that belong to the run with Name = "54149_DryRun_2Cells_20161219".

First, get the list of all runs:

GET <http://smrtlink-release:9091/smrt-link/runs>

The response will be an array of run objects, as in the following example:

```
[ {
  "name" : "2016-11-08_3150473_2kLambda_A12",
  "uniqueId" : "97286726-b243-45b3-82f7-8b5f58c56d53",
  "createdAt" : "2016-11-08T17:50:57.955Z",
  ...
  "summary" : "lambdaNEB"
}
```

```

    }, {
      ...
    }, {
      "name" : "54149_DryRun_2Cells_20161219",
      "uniqueId" : "798ff161-23ee-433a-bfd9-be8361b40f15",
      "createdAt" : "2016-12-19T16:08:41.610Z",
      ...
      "summary" : "DryRun_2Cells"
    }, {
      ...
    }, {
      "name" : "2017_01_21_A7_RC0_2.5-6kb_DS",
      "uniqueId" : "5026afad-fbfa-407a-924b-f89dd019ca9f",
      "createdAt" : "2017-01-21T00:21:52.534Z",
      ...
      "summary" : "gencode_23_transcripts"
    }
  ]
}

```

Now, search the above response for the object with the “name” field equal to “54149_DryRun_2Cells_20161219”.

From the above example, you will get the run object with the “uniqueId” field equal to “798ff161-23ee-433a-bfd9-be8361b40f15”.

With this run UUID = 798ff161-23ee-433a-bfd9-be8361b40f15, get all collections that belong to this run:
GET <http://smrtlink-release:9091/smrt-link/runs/798ff161-23ee-433a-bfd9-be8361b40f15/collections>

The response will be an array of collection objects of this run, as in the following example:

```

[ {
  "name" : "DryRun_1stCell",
  "instrumentName" : "Sequel",
  "context" : "m54149_161219_161247",
  "well" : "A01",
  "status" : "Complete",
  "instrumentId" : "54149",
  "startedAt" : "2016-12-19T16:12:47.014Z",
  "uniqueId" : "7cf74b62-c6b8-431d-b8ae-7e28cfd8343b",
  "collectionPathUri" :
"/pbi/collections/314/3140149/r54149_20161219_160902/1_A01",
  "runId" : "798ff161-23ee-433a-bfd9-be8361b40f15",
  "movieMinutes" : 120
}, {
  "name" : "DryRun_2ndCell",
  "instrumentName" : "Sequel",
  "context" : "m54149_161219_184813",
  "well" : "B01",
  "status" : "Ready",
  "instrumentId" : "54149",
  "startedAt" : "2016-12-19T16:12:47.014Z",
  "uniqueId" : "08af5ab4-7cf4-4d13-9bcb-ae977d493f04",
  "collectionPathUri" :
"/pbi/collections/314/3140149/r54149_20161219_160902/2_B01",
  "runId" : "798ff161-23ee-433a-bfd9-be8361b40f15",
  "movieMinutes" : 120
}
]

```

In the above example, both collections of the run have “status” : “Complete”.

Hence, the corresponding subreadsets should already exist, and can be retrieved as described below.

Take the UUID of the first collection, i.e. “uniqueId”: “7cf74b62-c6b8-431d-b8ae-7e28cfd8343b”, and get

the corresponding subreadset object:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/7cf74b62-c6b8-431d-b8ae-7e28cfd8343b

The response will be a subreadset object, as in the following example:

```
{
  "name" :
  "54149_DryRun_2Cells_20161219", "uuid"
  : "7cf74b62-c6b8-431d-b8ae-
  7e28cfd8343b", "id" : 5164,
  "createdAt" : "2016-12-19T19:20:46.968Z",
  "path" :
  "/pbi/collections/314/3140149/r54149_20161219_160902/1_A01/m54149_161247.subreadset
  .xml", "tags" : "subreadset",
  "instrumentName" : "Sequel",
  ...
  "wellExampleName" : "DryRun_1stCell",
  "runName" :
  "54149_DryRun_2Cells_20161219",
  "datasetType" :
  "PacBio.DataSet.SubreadSet",
  "comments" : " "
}
```

From the above response, take the value of the "id" field, which is equal to 5164 in the above example. So dataset ID = 5164 will be the value for the first entry point for 'pbsmrtpipe' job.

Now take the UUID of the second collection, i.e. "uniqueId": "08af5ab4-7cf4-4d13-9bcb-ae977d493f04", and get the corresponding subreadset object:

GET http://smrtlink-release:9091/secondary-analysis/datasets/subreads/08af5ab4-7cf4-4d13-9bcb-ae977d493f04

The response will be a subreadset object, as in the following example:

```
{
  "name" : "54149_DryRun_2Cells_20161219",
  "uuid" : "08af5ab4-7cf4-4d13-9bcb-
  ae977d493f04", "id" : 5165,
  "createdAt" : "2016-12-19T21:57:11.173Z",
  "path" :
  "/pbi/collections/314/3140149/r54149_20161219_160902/2_B01/m54149_184813.subreadset
  .xml", "tags" : "subreadset",
  "instrumentName" : "Sequel",
  ...
  "wellExampleName" : "DryRun_2ndCell",
  "runName" :
  "54149_DryRun_2Cells_20161219",
  "datasetType" :
  "PacBio.DataSet.SubreadSet",
  "comments" : " "
}
```


From the response, again take the value of the “id” field, which is equal to 5165 in the above example. So dataset ID = 5165 will be the value for the second entry point for ‘pbsmrtpipe’ job.

Build the request body for creating ‘pbsmrtpipe’ job.

Use these two dataset IDs obtained above as values of the “datasetId” fields in the “entryPoints” array. For example:

```
{
  "name" : "A4_All4mer_1hr_launchChem",
  "entryPoints" :
  [{
    "eid_subread",
    "fileTypeId" :
    }, { "PacBio.DataSet.SubreadSet", "datasetId"
      : 5164

    "entryId" : "eid_subread2",
    "fileTypeId" :
    }, { "PacBio.DataSet.SubreadSet", "datasetId"
      : 5165
    "entryId" :
    "workflowOptions" : [],
    "taskOptions" :
    [{
      "optionId" :
      "genomic_consensus.task_options.algorithm",
      "value" : "quiver",
      "optionTypeId" : "pbsmrtpipe.option_types.string"

      "optionId" :
      "genomic_consensus.task_options.diploid",
      "value" : false,
      "optionTypeId" : "pbsmrtpipe.option_types.boolean"
    "pipelineId" : "pbsmrtpipe.pipelines.sa3_resequencing"
  }
```

Now create a job of type “pbsmrtpipe”.

Use the request body built above in the following API call:

POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/pbsmrtpipe

Verify that the job was created successfully. The return HTTP status should be 201 Created.

5.10 How to delete a job

5.10.1 Workflow

To delete a job, you need to create another job of type “delete-job”, and pass the UUID of the job to delete in the payload (a.k.a. request body).

Perform the following steps:

1. Build the payload for the POST request as a JSON with the following fields:

- **jobId:** The UUID of the job to be deleted
- **removeFiles:** A boolean flag specifying whether to remove files associated with the job being deleted
- **dryRun:** A boolean flag allowing to check whether it is safe to delete the job prior to actually deleting it. As an example, see the payload shown in “Delete job - request example” of [Delete Job](#).

Note: If you want to make sure that it is safe to delete the job (there is no other piece of data dependent on the job being deleted), then first set the “dryRun” field to ‘true’ and perform the API call described in Step 2 below. If the call succeeds, meaning that the job can be safely deleted, set the “dryRun” field to ‘false’ and repeat the same API call again, as described in Step 3 below.

2. Check whether the job can be deleted, without actually changing anything in the database or on disk.

Create a job of type “delete-job” with the payload which has dryRun = true; use the POST request with the following endpoint:

POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/delete-job

Note: See [Delete Job](#) for more details.

3. If the previous API call succeeded, i.e. the job may be safely deleted, then proceed with the actual deleting of the job.

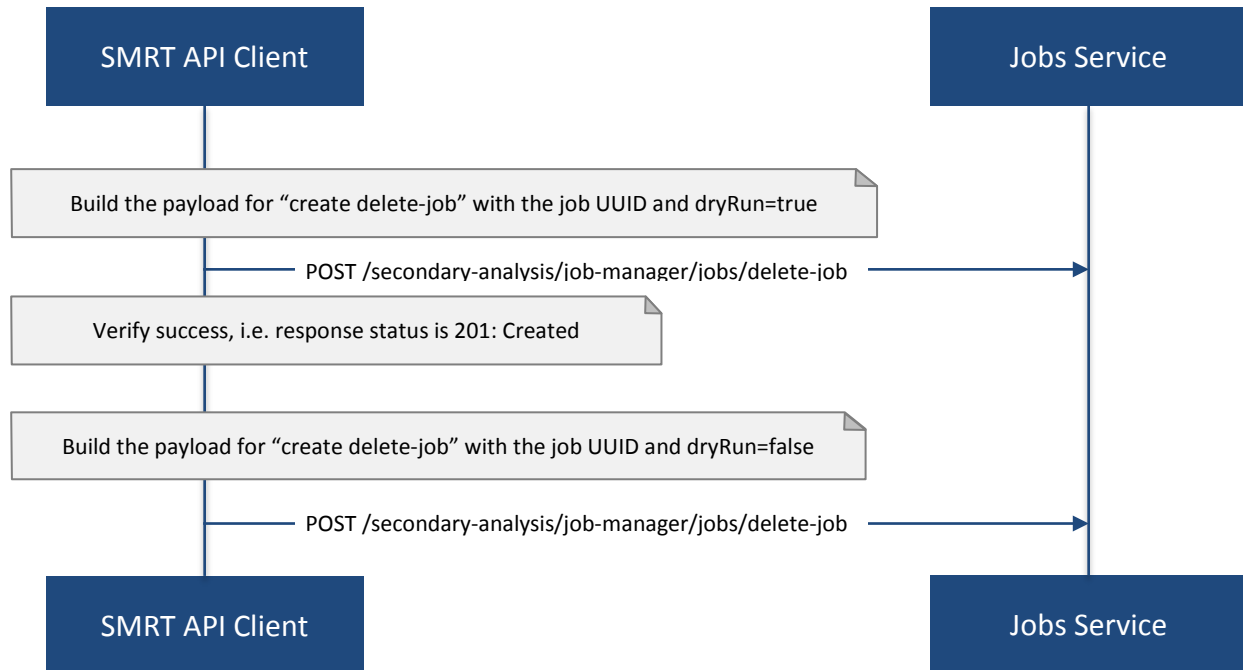
Create a job of type “delete-job” with the payload which has dryRun = false; use the POST request with the following endpoint:

POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/delete-job

Note: See [Delete Job](#) for more details.

5.10.2 Diagram

DELETE JOB SEQUENCE DIAGRAM



5.10.3 Example

Suppose you want to delete the job with UUID = 13957a79-1bbb-44ea-83f3-6c0595bf0d42.

Define the payload as in the following example, and set the "dryRun" field in it to 'true':

```
{
  "jobId" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42",
  "removeFiles" : true,
  "dryRun" : true
}
```

Create a job of type "delete-job", using the above payload in the following POST request:

POST http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/delete-job

Verify that the response status is 201: Created.

Also notice that the response body contains JSON corresponding to the job to be deleted, as in the following example:

```
{
  "name" : "Job merge-datasets",
  "uuid" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42",
  "jobTypeId" : "merge-datasets",
  "id" : 53,
  "createdAt" : "2016-01-29T00:09:58.462Z",
  ...
}
```

```
"comment" : "Merging Datasets MergeDataSetOptions(PacBio.DataSet.SubreadSet, Auto-merged subreads @1454026198403)"
}
```

Define the payload as in the following example, and this time set the "dryRun" field to 'false', to actually delete the job:

```
{
  "jobId" : "13957a79-1bbb-44ea-83f3-6c0595bf0d42",
  "removeFiles" : true,
  "dryRun" : false
}
```

Create a job of type "delete-job", using the above payload in the following POST request:

POST <http://smrtlink-release:9091/secondary-analysis/job-manager/jobs/delete-job>

Verify that the response status is 201: Created.

Notice that this time the response body contains JSON corresponding to the job of type "delete-job", as in the following example:

```
{
  "name" : "Job delete-job",
  "uuid" : "1f60c976-e426-43b5-8ced-f8139de6ceff",
  "jobTypeId" :
    "delete-job",
  "id" : 7666,
  "createdAt" : "2017-03-09T11:51:38.828-08:00",
  ...
  "comment" : "Deleting job 13957a79-1bbb-44ea-83f3-6c0595bf0d42"
}
```

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